

Maryland Scenic Rivers:

The ANACOSTIA



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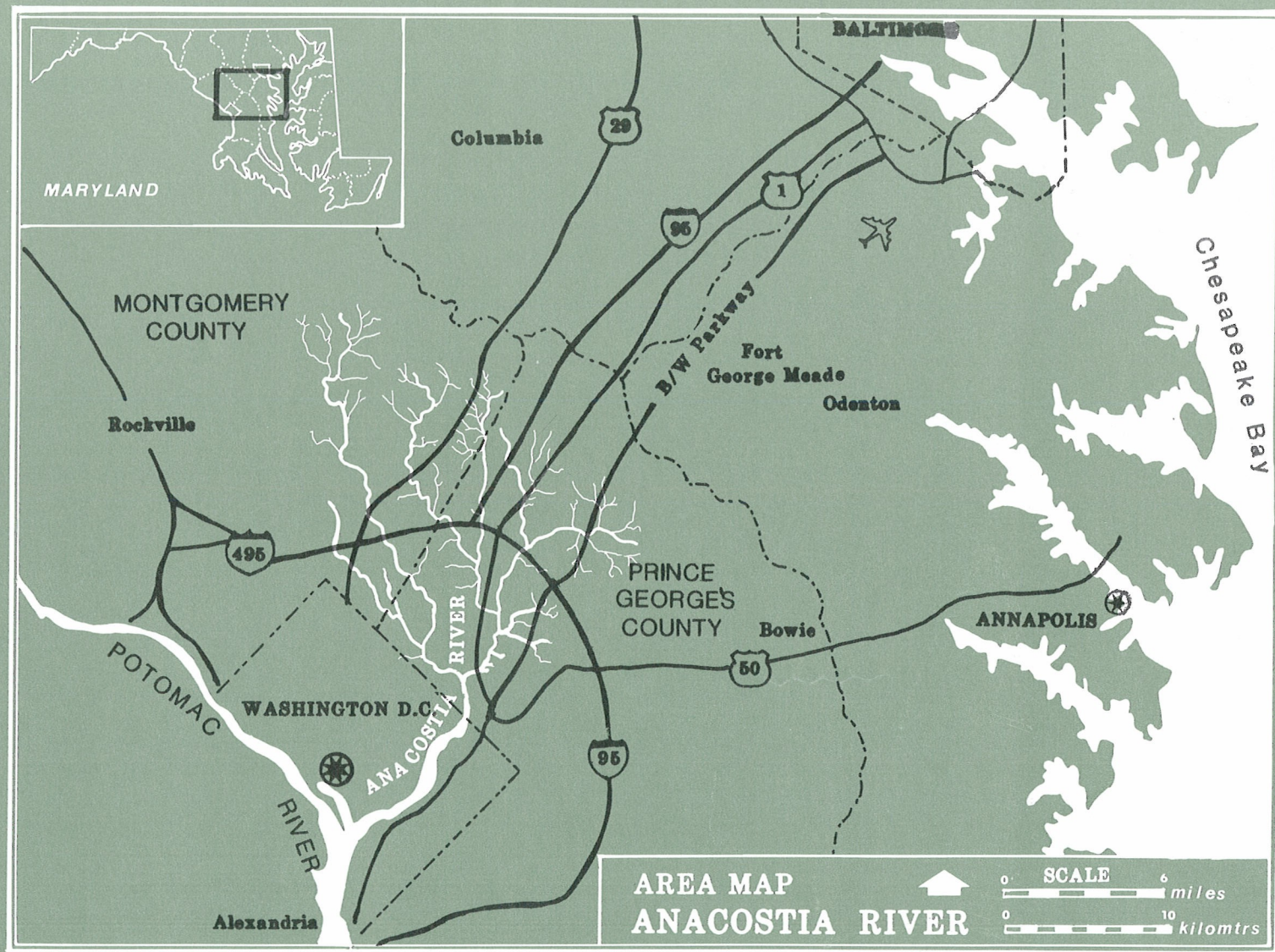




Maryland Scenic Rivers: The ANACOSTIA

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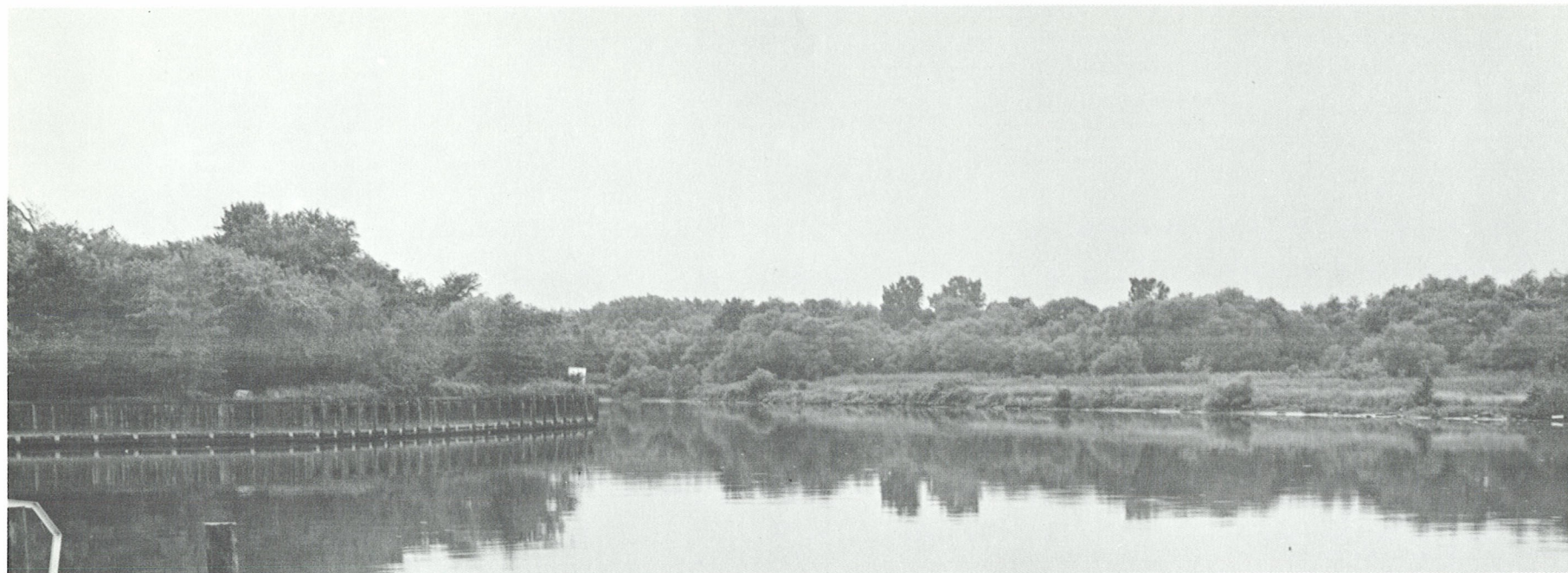
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CHAPTER I

Introduction

The Anacostia at Bladensburg



The Maryland Scenic and Wild Rivers Act was passed in 1968 in recognition of the need to protect rivers of outstanding value in the state. The Act directs the Secretary of the Department of Natural Resources to "provide for wise management . . . and preservation" of the land resources as well as the scenic and wild qualities of designated rivers. (See complete text of the Act in the Appendix.)

Among the designated rivers is the Anacostia, whose extensive network of streams flow through Montgomery and Prince George's Counties before forming the main stem of the river just two miles northeast of Washington, D.C. (The Anacostia continues

through Washington and joins the Potomac.) The multijurisdictional nature of the Anacostia River watershed resulted in the formation of a Joint Agency Committee to oversee the production of the Anacostia scenic river study and, most importantly, to implement the study's recommendations. The Joint Agency Committee is composed of the Washington Suburban Sanitary Commission (WSSC) and both the Montgomery and Prince George's County branches of the Maryland-National Capital Park and Planning Commission (M-NCPPC).

The Maryland Department of Natural Resources and the Joint Agency Committee have been assisted in the preparation of this Study by an advisory board, appointed

in 1980 by the Maryland Scenic and Wild Rivers Review Board. The advisory board is made up of private citizens and representatives of the county governments.

Although the Anacostia scenic river study covers only the stream systems and that part of the river located in Maryland, it is intended for use by anyone involved with or concerned about the Anacostia River. The Study provides a brief historical sketch of development in the Anacostia watershed. It also describes the scenic and recreational attributes of the area, presents recommendations for the preservation or improvement of these attributes, and discusses legislative and governmental concerns relating to the river.



Sligo Creek at Green Meadows; "stream channel erosion and the desposition of sediment" are among major problems of the Anacostia stream system.

CHAPTER II

Summary Findings and Recommendations

Findings

- Stream valley parks acquired by the Maryland-National Capital Park and Planning Commission are a major factor in the preservation of the scenic and environmental features of the Anacostia River.
 - The parks provide extensive recreational opportunities.
 - The overall water quality of the Anacostia River is good, except for levels of bacteria that exceed State standards.
 - Paint Branch, especially the uppermost portion of its watershed, is unique to the metropolitan Washington area since it supports a self-sustaining brown trout population.
 - A major sedimentation problem at Bladensburg has required continuous dredging of the tidal portion of the Anacostia River.
- Major problems include:**
- *land surface and stream channel erosion and the deposition of sediment*
 - *malfunctioning sanitary sewers*
 - *illegal discharges resulting in fish kills*
 - *streams strewn with trash and litter*
 - *destruction of aquatic and riparian habitats*
 - *a lack of trees or vegetation on many banks of the channelized reaches due to flood control projects*
 - *stormwater runoff of unacceptable quantity or quality from residential, commercial, industrial, and agricultural areas.*

Recommendations

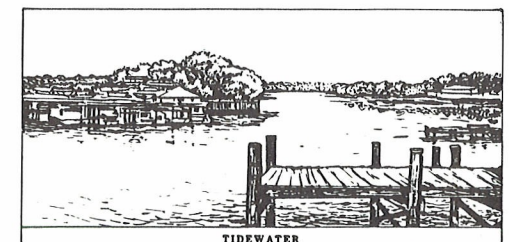
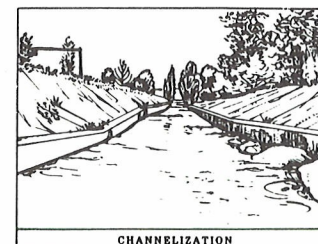
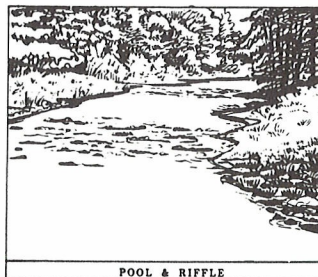
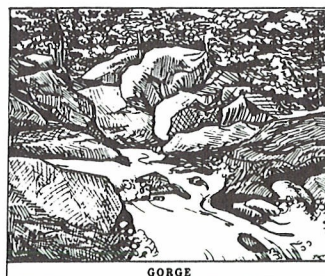
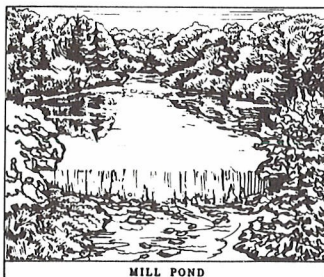
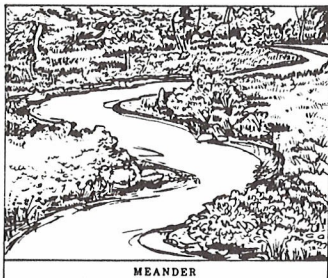
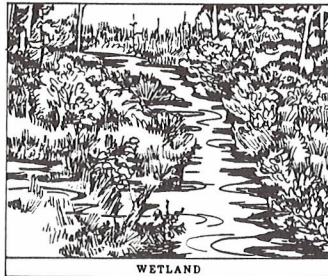
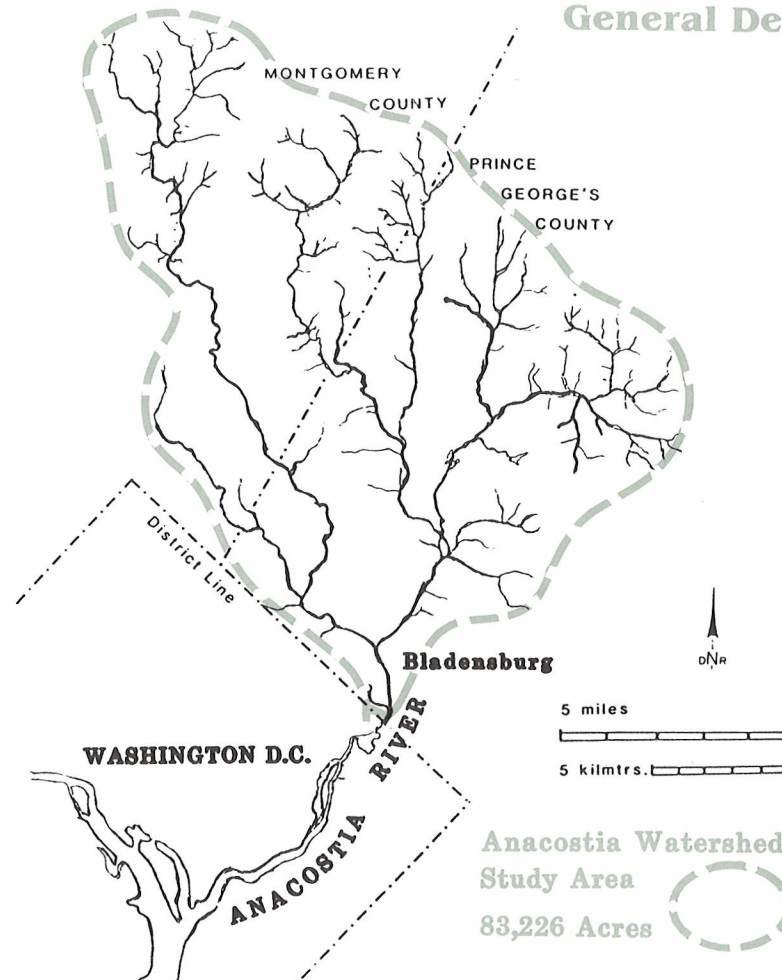
- Consider the Anacostia River as a whole rather than a series of separate jurisdictional responsibilities.
- Conduct an on-going public education and information program on the attributes and problems of the Anacostia River and the ways the public can help protect it.
- Continue the stream valley park acquisition program.
- Increase consideration of environmental factors in land use plans.
- Maintain the natural conditions along the river and its tributaries.
- Provide more inspections and stricter enforcement of sediment control ordinances.
- Provide a balanced comprehensive stormwater management program for the Anacostia River watershed.
- Continue and complete county watershed plans.

CHAPTER III The River in Perspective

General Description

The Anacostia River watershed in Maryland is located northeast of Washington, D.C. and lies within Prince George's and Montgomery Counties. The approximately 130-square mile (83,226 acres) watershed is supported by an extensive stream network that flows into the Anacostia River, which in turn empties into the Potomac River in Washington.

From their headwaters in each county, the streams of the Anacostia watershed flow through a variety of settings. These settings, called *riverscapes*, vary from those typical of the Piedmont Plateau (i.e., pool and riffle, torrent, and gorge streams) to others usually associated with the Atlantic Coastal Plain (i.e., natural, meandering, and tidal streams). Many stretches of the streams show no influence of human activities while others have been realigned, directed through concrete channels, or enclosed. The land uses surrounding the stream valleys range from farms, rolling woodlands, and open space to residential, commercial, and heavy industrial districts. In many instances the stream valleys have been acquired for public ownership through federal, state, and county programs. In general, these areas have been set aside as parklands, and as such they greatly enhance the watershed's scenic qualities and provide opportunities for a variety of recreational uses.



Development of the Anacostia Watershed

In 1608, Captain John Smith discovered eighty Piscataway Indian warriors and their families in the vicinity of Northeast Branch. The livelihood of the tribe depended upon farming, the abundant natural vegetation, and hunting and fishing.

Colonial development in the Anacostia River basin began in the early 1700s. The early settlements were primarily dependent upon tobacco, the major money crop of the time. Plantations were soon established throughout the watershed; they were situated close to major waterways and on tracts of land suitable for producing large yields of tobacco. Beall Town, the watershed's first colonial town, was founded in 1728 when John Beall began selling one-acre lots along Northwest Branch just above its confluence with the Anacostia River.

The Port of Bladensburg was founded in 1742, thus further concentrating development within the river basin. The town included churches, mills, stores, tobacco-inspection houses, tobacco warehouses, shipping industries, shipyards, and other supporting businesses. As the population of Bladensburg and the surrounding area expanded, so did the exporting and importing activities. During the colonial period Bladensburg gained recognition as one of the key ports along the Atlantic seaboard. However, by 1830 the stretch of river near Bladensburg was unsuitable for navigation because of excessive siltation from agricultural runoff.

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Section of early map showing Piscataway Indians located in the Anacostia River Area.

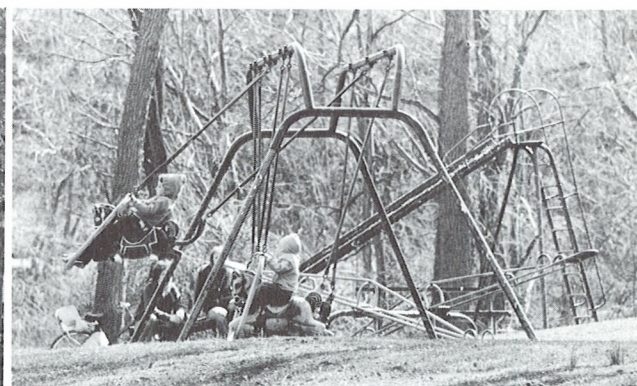
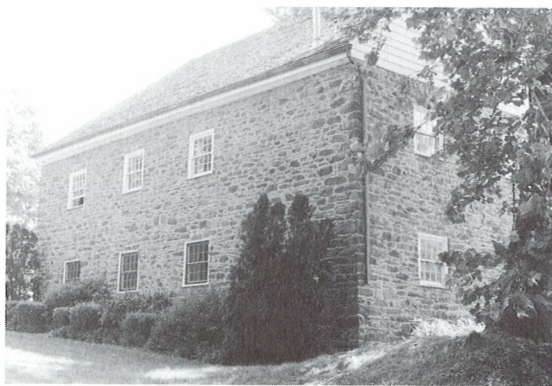
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During the 1800s the Anacostia watershed experienced economic hardships caused by a combination of poor economic conditions abroad and a decline in the tobacco industry. The decline in tobacco production was attributed to poor farming practices which resulted in eroded and nutrient-depleted soils. Nevertheless, limited agricultural activities continued. Farmers turned to such alternatives as raising diversified crops—including corn and wheat, dairying, and the raising of livestock. In addition, industrial ventures such as cotton and grist milling, mining, and quarrying were begun. Many of the mills, such as Adelphi Mill on Riggs Road in Adelphi, were located along the stream reaches that had moderate to steep gradients.

The beginning of the twentieth century brought an increase in government agencies and employees to the Anacostia River basin and neighboring Washington, D.C. This increased the need for suburban residential housing and the demand for improved transportation systems. This trend continues today and has resulted in the gradual decline of agriculture in the Anacostia watershed.

Today, much of the land is heavily urbanized, as is the Washington, D.C. metropolitan area in general. Development within the past 30 years has followed a general development plan initiated by the Maryland-National Capital Park and Planning Commission. This plan was designed to direct the growth of commercial, industrial, and heavy residential land uses to transportation corridors extending outward from the metropolitan area. Land uses such as parks, recreation centers, reserved open spaces, and low density residential developments are located between the transportation corridors, buffering the heavily urbanized areas. There are still large undeveloped areas in the Anacostia watershed as a result of federal ownership of land—Beltsville Agricultural Research



Center, White Oak Naval Surface Weapons Center—and some continuing farming activities in the upper stream watersheds.

Fortunately, throughout the years of rapid urban development, the conservation and preservation of valuable stream valleys and open spaces have been incorporated

into the local general development plans. Since 1927 approximately 4600 acres of stream valley parklands and open spaces in the Anacostia River watershed have been acquired by M-NCPPC with the support of various federal, state, and county agencies.

CHAPTER IV Riverscapes

General Description

An understanding of the character and nature of a river is needed in order to make recommendations for its scenic and recreational uses. One approach to further our understanding of a river is through the use of descriptive *riverscapes*, which combine the river's physical and surrounding land-use setting with a subjective visual quality appraisal.

Several riverscapes are needed to describe the Anacostia. This is because the river flows through two distinct geological provinces and has undergone channelization as a result of intensive watershed urbanization. The physical settings considered are torrent, pool and riffle, gorge, wetland, mill pond, natural channel, channelized or improved channels, and tidewater. The surrounding land uses consist of rural, agricultural, suburban residential, medium and high density residential, industrial/commercial, urban parks, recreational open space, and woods. These physical and land-use settings are briefly described in the following sections.

Picture captions, facing page:

Upper L: Calvert mansion, Riverdale, 1801-1803

Upper R: Woodlawn, Norwood area, Montgomery Co., before 1815.

Center: "The increased need for suburban residential housing and the demand for improved transportation systems have resulted in the gradual decline of agriculture in the Anacostia watershed."

Lower L: Adelphi Mill, 1796-1798

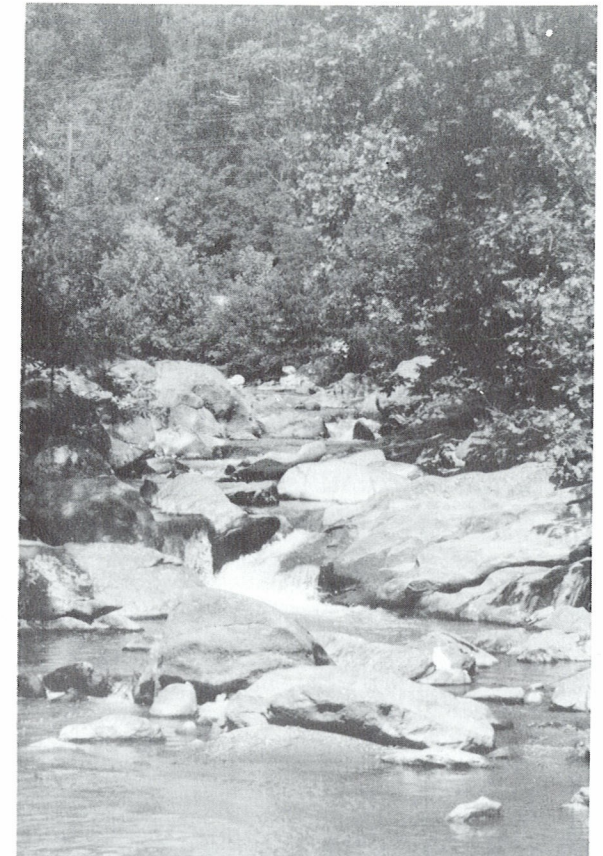
Lower R: "Since 1927 approximately 4600 acres of stream valley parkland and open spaces in the Anacostia River watershed have been acquired by M-NCPPC with the support of various state, federal, and county agencies."

Torrent



Torrent streams in the Anacostia watershed are associated with the higher gradient fall-line sections of the river. The stream bottoms consist of gravel, large rocks, and boulders. Rushing water flows over and around the rocks and boulders, creating a visual delight of white water, swirling currents, and small intermittent pools.

Torrent-like stream channels are a rigorous habitat, suitable only for organisms adapted to conditions of swiftly flowing water. Aquatic plant life is limited to such plants as filamentous algae, which attach



Northwest Branch near Route 29

themselves to the bed material, and mosses which cover rock outcrops. Fish and invertebrates are the primary animal life.

Invertebrates such as insect larvae are generally found on the undersides of boulders and rubble. They feed on suspended matter and algae. The turbulent flow aerates the water and acts to improve its quality downstream.

Pool and Riffle



Pool and riffle streams typically flow through valleys having gentle or moderate gradients. The streams are characterized by stretches of water flowing over shallow gravel or rocky beds, interspersed with pools in which the current is slowed. Where a pool interrupts the watercourse the streambed

usually contains deposits of sand, silt, and organic detritus. The stream bank is generally vegetated and noticeably higher than the stream channel. Streamflow is greatly affected by precipitation, seasonal variation, and land use.

Because of their habitat diversity, pool and riffle streams support a great variety of stream life. Many of the organisms resemble those found in torrent streams. Large cool deep pools that are well-shaded by an overhanging forest canopy are high in dissolved oxygen, provided with ample cover, and are ideal habitats for fish such as trout. These pools also support minnows and other aquatic life.

Very small pool and riffle tributaries are valuable spawning habitats which contribute significantly to the fish population of large streams. Many species of mammals and amphibians also use these streams and dwell along the forested banks. The high productivity, numerous habitats, and clear water in the Anacostia's pool and riffle areas make these streams a unique natural resource.



Pool and riffle along Northwest Branch at New Hampshire Avenue

Gorge



A gorge is characterized by steep banks and streamwalls cut through rugged, rocky terrain. Gorges are likely to be found where there is a rapid descent in elevation, granitic rock outcropping, and a swift, gushing waterway.

The vegetation adapts to organically poor



Gorge site, Northwest Branch near Route 29

topsoils and includes such common species as hemlock, pine, oak, and laurel. Mosses and ferns grow on moist rock banks, while rock crevasses and exposed roots provide habitats for ground squirrels, lizards, and snakes. The thin woods established on rocky stream banks are a fragile environment, sensitive to human disturbance as well as fire and wind damage.

Wetlands



Wetlands are pockets of wet spongy land which support a variety of water-tolerant and water-loving plants and attract a varied assortment of wildlife. Wetlands are usually found in low-lying areas with a poorly defined basin or channel. The Anacostia basin's inland wetlands include areas ranging from small depressions in a pasture or seepage collecting in an upland plateau to abandoned beaver ponds. These areas can develop a considerable density of vegetation because they are shallow and open and always retain some water. Cotton grass and rushes are interspersed with moss in the



Wetland area on Indian Creek near Route 495

soggy spots, while on firmer land there are many shrubs and small trees which contribute to the green texture of many wetland areas.

The dense plant cover can store large quantities of water, making bogs and swamps valuable recharge areas or areas that retain floodwaters. In addition, these wetlands harbor songbirds, muskrats, and wildfowl, and provide winter browse for deer. Frogs, salamanders, and other amphibians also reside in the wettest spots.

Wetlands are frequently drained or filled because they are unsuitable for construction or cultivation. And they are often regarded by landowners as a breeding area for insects and vermin and a possible hazard to children. However, where wetlands in urbanized areas can be protected properly by improving upstream conditions, their preservation is important to a healthy downstream environment.

Millponds



Millponds or reservoirs are areas of slack water and widened stream channels. They were formed wherever streams were dammed to supply water power to local mills. Commonly found along pool and riffle streams, millponds are attractive and have special historic significance since they

(continued next page)

Millponds *(continued)*

mark the sites of early industrial activity.

The calm water in a millpond can extend upstream for a considerable distance, combining features of the pool and riffle stream environment with those of still water. Although millponds reduce the number of current-dependent organisms, they do have biological value. Largemouth bass and various species of sunfish, as well as bottom-feeding fish, can inhabit these ponds. Plankton and aquatic plants, which take root in millponds, help support populations of ducks. In addition, millponds provide flood protection. They act as miniature reservoirs, temper the high velocity of floodwaters, and also allow some of the sediment washed in with storm runoff to settle.



Natural channel, Northwest Branch near University Boulevard

Millpond on Northwest Branch above Burnt Mills Dam



View of Burnt Mills Dam, Northwest Branch

Natural Channel



A natural channel has well defined banks and few pool and riffle areas. It is generally less than three feet deep and flows at a moderate velocity.

Natural channels in the Anacostia watershed frequently undergo moderate to severe bank erosion which causes sediment to be deposited in the channel bends. These areas are often channels in transition and are increasingly affected by flows from upstream urbanization.

Many of the natural channels in the Anacostia watershed are not very scenic, since they are marred by collapsing stream banks and silt sand bars. However, some reaches do have scenic value due to the meandering nature of the stream and the streamside vegetation. The stream banks and floodplains vary in cover from grass to dense woods. These reaches are usually not as biologically rich or diverse as pool and riffle areas because they have less habitat, shade, and cover for fish. The number of large aquatic insects is lower, and the stream bottom algae form large mats, depleting the amount of oxygen in the water.

Improved or Channelized Sections

Channelized section in need of repair, Little Paint Branch near I-95



A considerable portion of the lower Anacostia has been channelized or improved hydraulically to relieve flooding problems. The resulting trapezoid-shaped channels are wide and of relatively uniform width with no meanders. The banks of some of the channelized sections have been covered with grass and small shrubs. In a few instances the natural vegetation on the floodplain has been cleared and replaced with earthen grass-covered levees. Deep-rooted vegetation and trees have been removed and are not allowed to re-establish, to assure the structural integrity of the levees.

The shallow slow-moving water is not shaded by tree cover and thus reaches high temperatures in the summer. These sec-

tions support very little aquatic life with only a limited diversity of large insects or fish. Algal scum is often seen floating on the water's surface and the silt-laden bottom is covered with algae.

These channelized sections of the Anacostia have very little natural scenic value. However, as a result of the channelization and other flood control projects, flood damage has been greatly reduced and public safety enhanced, although channelization can lead to flooding and erosion downstream in the non-channelized sections. This situation is typical of conflicts that often arise when man encroaches upon natural systems. Channelization in the Anacostia basin may actually protect some natural and historic features, but at the expense of the river's scenic environment.

Tidewater

A distinctive tidewater section of the Anacostia River exists near Bladensburg. In tidewaters, stream currents combine with

tidal fluctuations to create a circulatory streamflow. The water is murky from nutrients and fine sediments suspended in the circulating currents. Coarse sediments carried by currents are deposited on the bot-

tom of the channel while fine silts and clay deposits are washed onto the high-tide shoreline. Plankton, aquatic insects, migratory fish, and waterfowl are among the seasonal habitants.

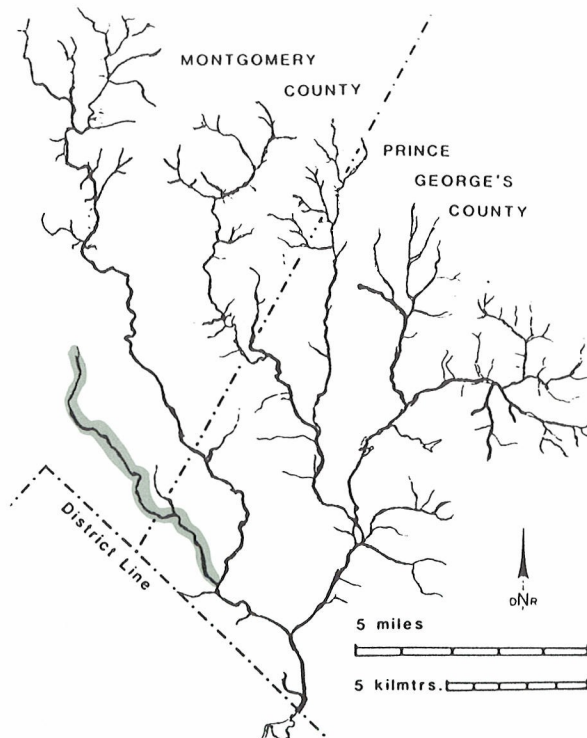
Bladensburg Marina, tidewater section of the Anacostia, Prince George's County



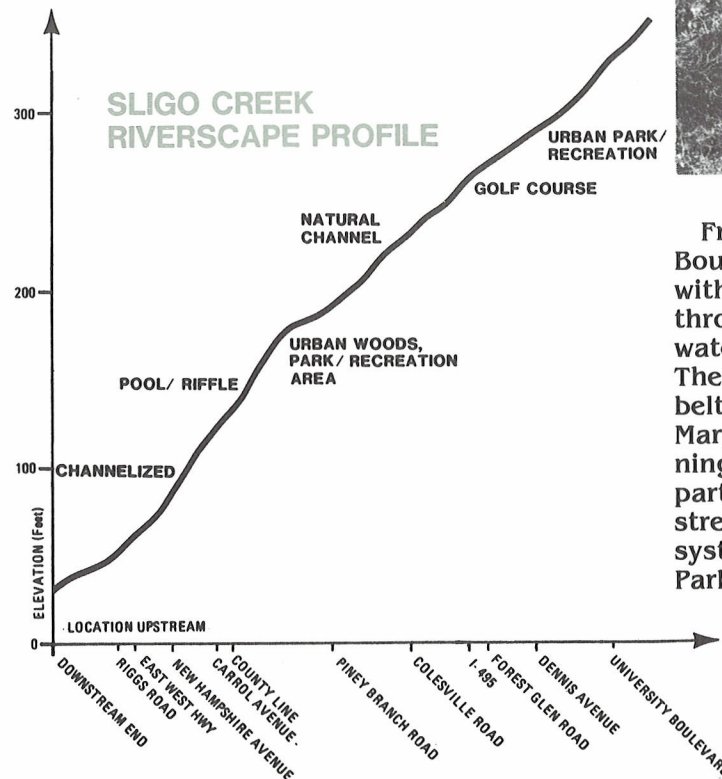
Detailed Riverscapes

This section describes the riverscapes and identified problems of the Anacostia River and each of its main tributaries. The tributaries are considered from west to east—Sligo Creek, Long Branch, Northwest Branch, Paint Branch, Little Paint Branch, Indian Creek, Beaverdam Creek, Northeast Branch, and the main Anacostia River. Profiles are given for each tributary, to show the change in slope of the stream, location of major roads along the stream's length, and the type of riverscapes that occur.

Sligo Creek



Sligo Creek in Silver Spring, left, and Takoma Park, right



From its headwaters above University Boulevard near Wheaton, to its confluence with Northwest Branch, Sligo Creek travels through one of the most heavily urbanized watersheds in the Anacostia River system. The stream is bordered by a narrow greenbelt of public parks operated by the Maryland-National Capital Park and Planning Commission. The stream itself is not particularly scenic, especially the downstream channelized reaches, but the park system is easily accessible via Sligo Creek Parkway, and thus the recreational value is

Detailed Riverscapes (continued)

high. Even during weekdays, many people enjoy the serenity of the park or take advantage of its recreational features.

Sligo Creek consists largely of natural channels and pool and riffle areas, but its problems reflect the dense urban surroundings. Although the water is fairly cool and clear, with stretches of gravel bottom, there is little aquatic life.

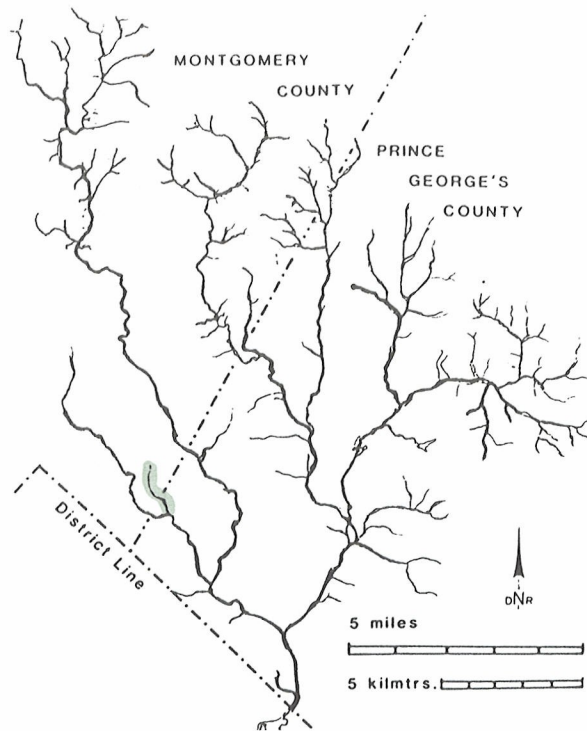
There are some areas of sediment deposi-

tion, although most of the sediment is carried downstream to the lowest reaches of Northwest Branch. Sedimentation is particularly evident around roadway drainage outfalls from Sligo Creek Parkway. However, the Creek's most obvious problem is the severe stream-bank erosion caused by increased stream flow during heavy rains. This erosion is undermining the parkway in several locations. Occasionally Sligo Creek

also receives raw wastewater from surcharging sanitary sewer manholes. Also in evidence are tires, shopping carts, bottles, and other debris that litter the stream valley and the stream itself.

Although obviously affected by urbanization, Sligo Creek with its associated park system is among the Anacostia's most accessible and enjoyable tributaries to visit.

Long Branch



Long Branch



Long Branch flows through recreational park property and fully developed residential areas in Silver Spring before joining Sligo Creek near Langley Park. It is the sole remaining major tributary of Sligo Creek that is not primarily enclosed.

Long Branch is formed from springs collected in an underground pipe that emerges at the head of Long Branch Park. The entire length of the stream is characterized by natural channels and pool and riffle areas. Sporadic riprap emplacements have been installed to protect the stream bank from erosion caused by construction in the stream (i.e. sanitary sewers, road crossings,

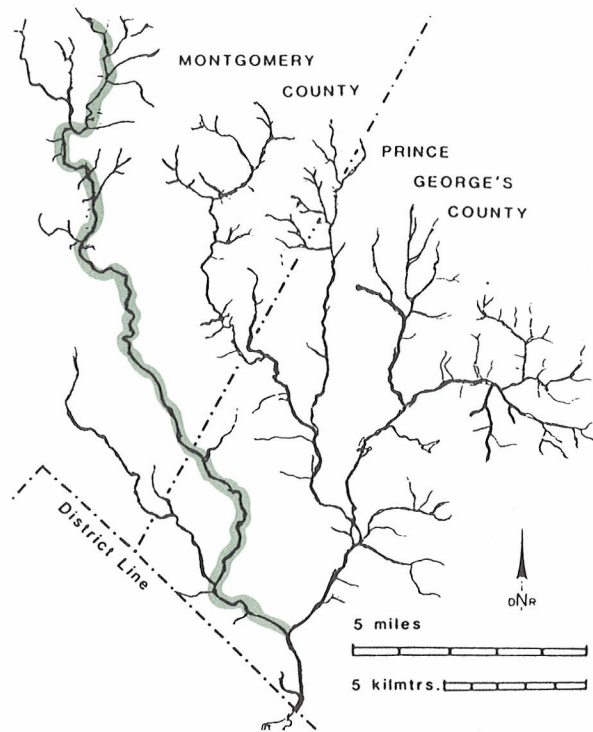
Long Branch Park



storm drain outfalls, etc.) and heavy stormwater runoff from developed areas.

The stream valley park bordering Long Branch is readily accessible and provides many recreational opportunities to the local community. The frequent recreational use of the park coupled with the stormwater runoff from the dense urban surroundings have resulted in a waterway that has very limited aquatic life, shows signs of flooding and accelerated erosion, and in some places is strewn with litter. Nevertheless, its banks (especially the natural setting at the head waters) do provide habitat for a surprising amount of plant and animal life.

Northwest Branch



Northwest Branch has the highest diversity of riverscapes and some of the most

scenic areas in the Anacostia River system. The riverscapes include millponds, a gorge, and an extensive channelized section. Land use varies from agricultural to dense urbanization. Northwest Branch also has an extensive stream valley park system. Its watershed, which has more rock and mineral outcrops than the other Anacostia River tributaries, is an excellent area for amateur geologists. However, there are areas of sand and gravel deposits in the stream, and the banks are eroding in places. Trash is also evident and, like Sligo Creek, Northwest Branch sometimes receives raw wastewater from surcharging sanitary sewer manholes. The impact of this flow on the tributary is dramatic from a visual, ecological, and aesthetic viewpoint and results in algae growth on the rocks and settled sewage on the channel bottom.

The uppermost section of Northwest Branch, in Montgomery County above Bonifant Road, is a pool and riffle stream with some natural channels in nonurbanized surroundings. There are also woods, a golf course, agricultural activities, and some medium-density single family housing. The clear, well-shaded stream supports a healthy variety of aquatic life. This mildly-

sloped region is attractive and restful and, except for the golf course, does not receive heavy recreational use.

There is some evidence of stream-channel erosion, which seems to be from the limited urbanization in the area. In addition there is trash in the stream and the surrounding area from the golf course, residential developments, and illegal dumping.

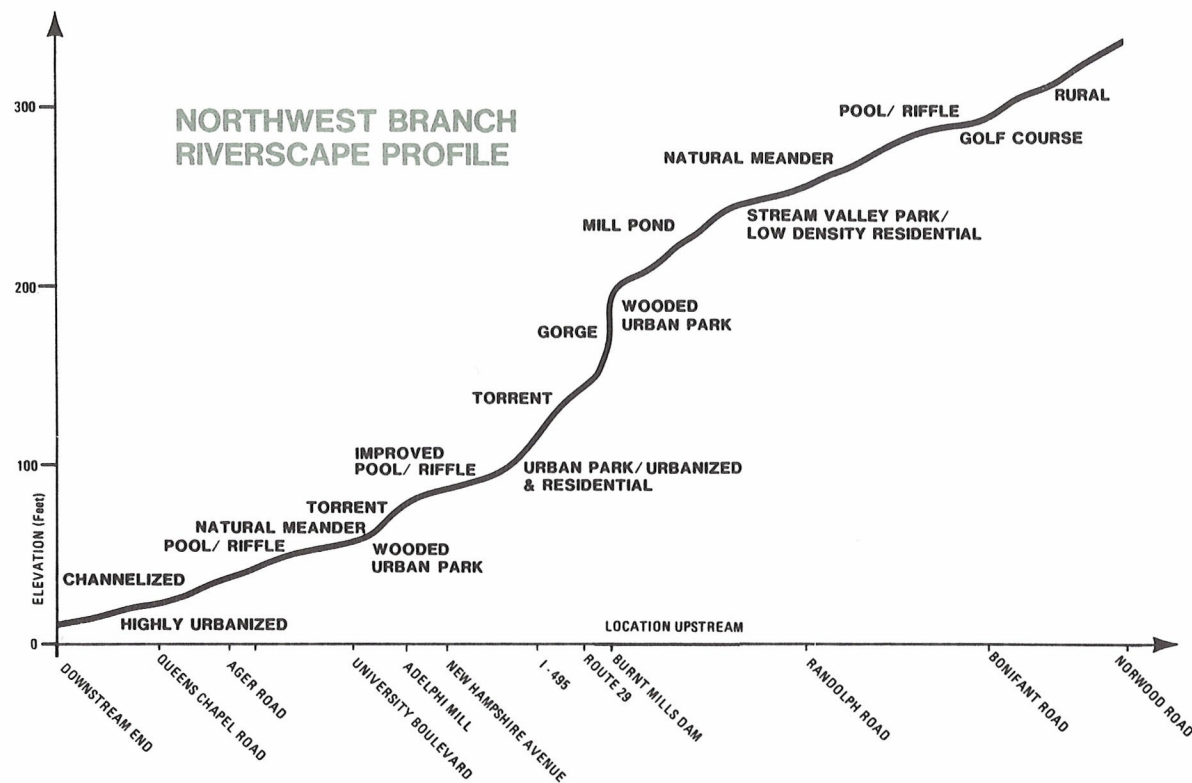
Farther downstream, in the vicinity of Randolph Road, Northwest Branch is a natural meandering channel with few pool and riffle areas. There are several low-to-medium density housing developments in this area but the floodplain is largely forested, with some cleared paths. The channel is undergoing bank erosion, which has caused trees to fall into the stream.

There is a very peaceful stretch of Northwest Branch in the vicinity of Quaint Acres where a mixture of pool and riffle areas and a natural, slow-flowing meander create a pleasant atmosphere. Access to this area is limited by steep, wooded, stream valley walls but a partially cleared path provides excellent hiking opportunities. The relatively low density of the surrounding residential area contributes to the feeling of isolation.

(continued next page)



Northwest Branch near Adelphi Mill, left, and at right, above confluence with Northeast Branch



The Burnt Mills dam and pond are just above Route 29. The impounded water here is turbid, yet the combination of calm water and wooded, vegetated banks creates a peaceful setting. Upstream from the impoundment the stream gradually changes from a pond to a natural channel and finally to a pool and riffle area. The pool and riffle reach is surrounded by a steep stream valley which helps create the impression of an unspoiled wilderness.

Downstream from Route 29 Northwest Branch travels through the most scenic and rugged stretch of the Anacostia River watershed. The gorge and subsequent torrent create the images and sounds of a mountain stream. A narrow, yet heavily used path winds through Northwest Branch Park to the gorge. The park has steep slopes and is

heavily wooded. Below the larger boulders are several deep pools which are used for swimming holes.

Problems encountered in the gorge are litter, trash, and graffiti. But the channel banks are stable and the rapidly rushing water is well-shaded and highly aerated, resulting in good water quality.

As Northwest Branch travels under the Beltway (Interstate 95) toward New Hampshire Avenue it changes from torrent to pool and riffle reaches with some long, shallow pools. The channel has a rocky bottom with some siltation and is surrounded by a dense, wooded buffer and residential development. Although there is evidence of trash in the stream and some minor bank erosion, this relatively isolated section is attractive.

In the vicinity of New Hampshire Avenue

the banks are covered with riprap, while the channel has a uniform width with a shallow flow over the gravel, rock, and silt bottom. The stream is characterized by a wooded park setting within a highly urbanized area. A bike path runs adjacent to the stream. There are a number of unsightly stormwater outfalls and sanitary sewer manholes in the immediate vicinity.

A very attractive torrent area exists upstream from Adelphi Mill. The forested parkland contains a bike path, playground, and picnic area. These facilities and the stream itself receive heavy recreational use from the surrounding residential areas. The stream flows over and around large rock outcrops and has a gravel bottom with a fairly light sediment load. There is some limited bank erosion, as well as unsightly, abandoned sanitary sewer crossings, and litter in the stream. However, these problems are minor and detract only slightly from the visual beauty of this stretch of stream.

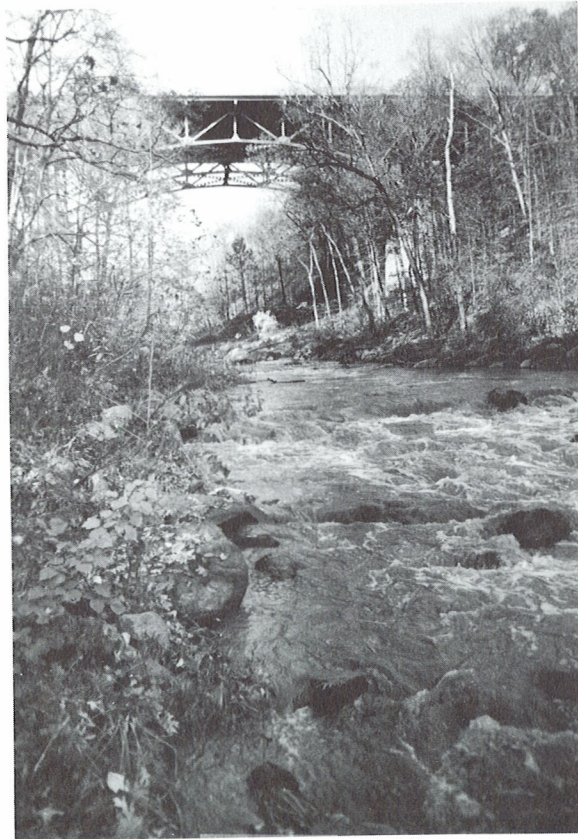
As the slope and geologic features change, Northwest Branch correspondingly changes from the torrent section near Adelphi Mill through pool and riffle reaches to a natural meandering stream near University Boulevard. There are large sand and gravel deposits in this area of the stream, as well as severely eroding stream banks. Trees have fallen into the stream, trapping debris behind them and partially blocking the channel. This area is mostly wooded and surrounded by urban residential and commercial land uses. Upstream from East-West Highway several homes within a few hundred yards of the stream have been subject to flooding.

Downstream from East-West Highway the Northwest Branch area is highly urbanized, with some commercial and industrial sections. This area contains some of the properties most heavily damaged during the storms of 1972 and 1975. Channelization has been undertaken and levees installed to

limit some of the flooding potential. The streambank vegetation has been removed and the wide, unshaded channels support little high quality aquatic life. The channel bottom is covered with algae which periodically slough off and form unsightly mats floating on the water surface.

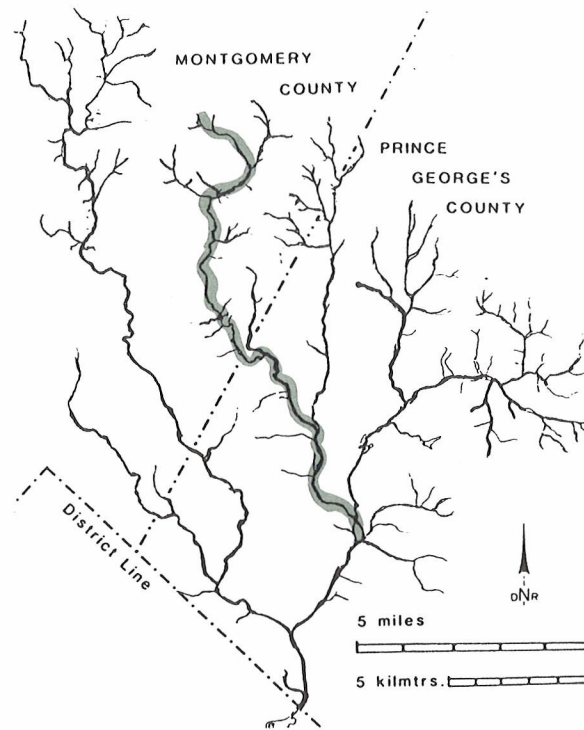
Channel erosion has taken place in those reaches without stabilized banks. This situation, in combination with the shallow flow, heavy siltation, trash, and the uniformity of the channel, makes lower Northwest Branch particularly unattractive.

Recreational use in the surrounding parkland is low.



Northwest Branch under the Beltway

Paint Branch



Paint Branch begins in eastern Montgomery County as a small pool and riffle stream. It passes first through undeveloped areas, but by the time it joins Northeast Branch near Riverdale in Prince George's County it has become channelized and flows through urban areas as well as parkland. Of special importance for Paint Branch and the Anacostia River system is the presence of a reproducing brown trout population in the upper reaches of the Paint Branch watershed. The trout were introduced into the stream by the State in 1937. This is the only self-sustaining trout population in the Washington, D.C. vicinity.

The Good Hope Branch and Gum Spring Branch tributaries are small pool and riffle

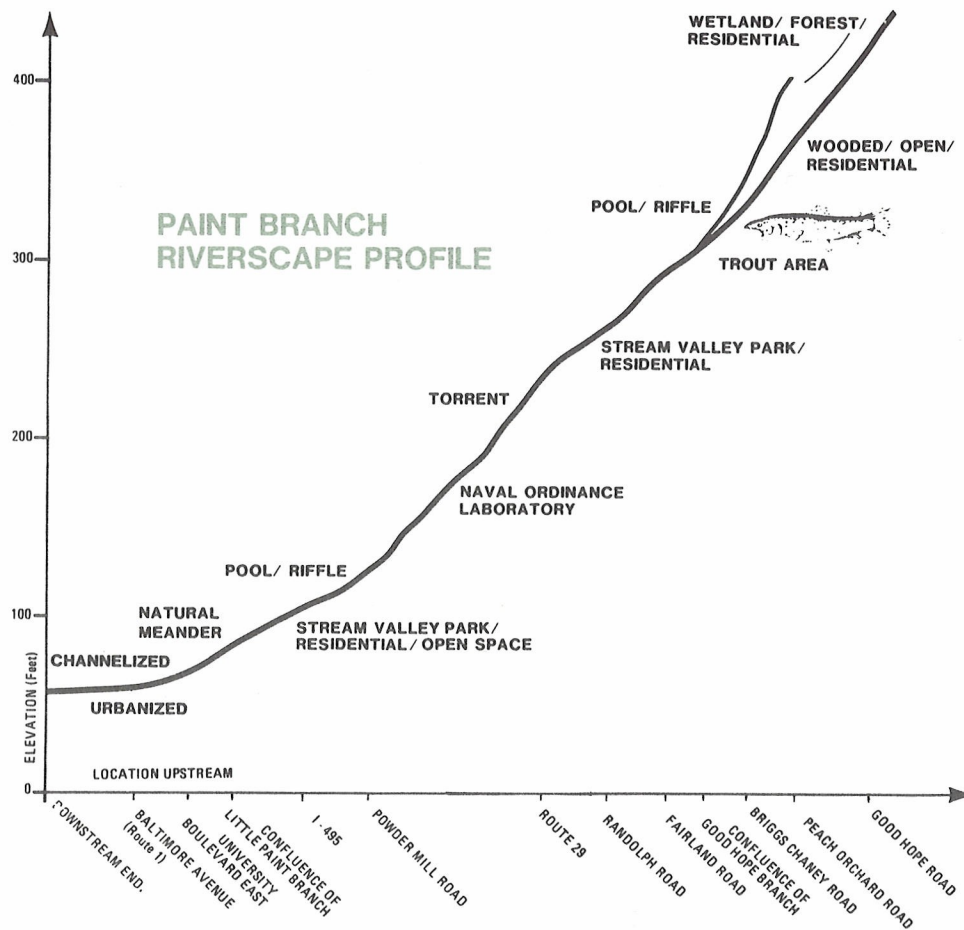
Paint Branch off Randolph Road in the Fairland area



stream that flow through relatively undisturbed land. These well-shaded streams, fed by springs and wetlands, are the primary trout-spawning areas of Paint Branch. Their clear, cool waters run over gravel and rock bottoms that have not been subject to sedimentation. Fortunately, the streams are not heavily used for recreation.

The major challenge in the upper Paint Branch watershed is the protection of the trout from the impacts of urbanization. Therefore, it is important to preserve the streambank vegetation as well as the relatively silt-free habitat. The acquisition of adjoining land would be one measure to provide protection.

Below the confluence of Good Hope and Gum Spring Branches, Paint Branch is a pool and riffle stream with a gravel and rock bottom. It flows through forested valleys surrounded by low-to-medium density residential developments. The stream valley park system extends along much of Paint



Paint Branch downstream from Powdermill Road



Branch from Fairland Road to below Route 29. There are areas of localized channel erosion and sediment deposition from construction activities, although the sediment problem is generally small compared to other tributaries and the lowest reaches of Paint Branch.

In the vicinity of Route 29, but upstream from Powder Mill Road, Paint Branch becomes a torrential stream running over large rocks and boulders. This is a very scenic area and the forested stream valley receives moderate recreational use. A large segment of the stream flows through the White Oak Naval Surface Weapons Center,

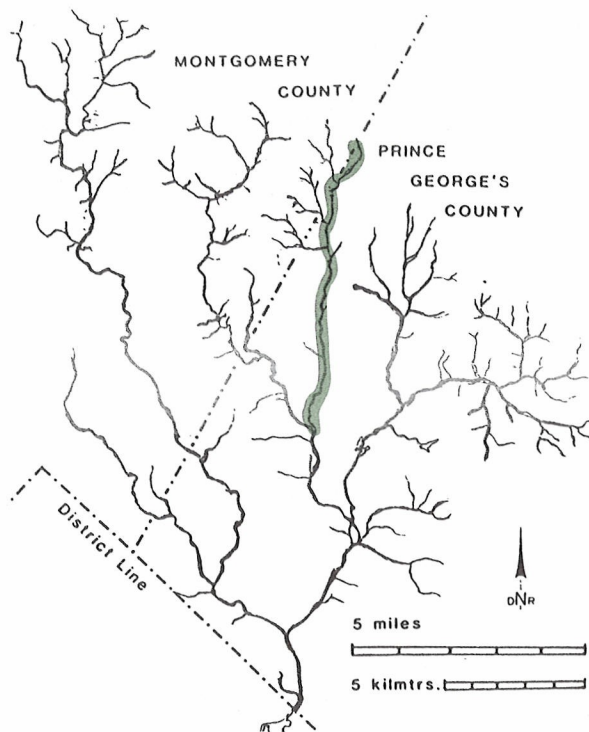
where the Center's wastewater treatment plant discharges into the stream. Water quality records show that the treatment plant has a high quality effluent and little impact on the overall quality of Paint Branch. However, the use of chlorine for disinfection of the wastewater has created a barrier for the passage of fish near the plant's outfall. The treatment plant is due to be connected to the WSSC system, thereby eliminating the chlorine problem.

The Powder Mill Road area of the stream also is very scenic and receives heavy recreational use. Downstream from Powder Mill Road, Paint Branch changes to a pool and

riffle stream and flows past large rock outcrops. Paths extend throughout the wooded stream valley park and are frequently used. Some homes are located close to the stream. There are limited areas of channel erosion and gravel deposits. The quality of the water is good and the stream supports a wide diversity of aquatic life.

As Paint Branch flows toward University Boulevard it changes from a pool and riffle stream to a natural meander with occasional pools and riffles. Sedimentation from highway construction is evident where the stream flows under the Beltway and I-95. Paint Branch then continues through mostly wooded stream valley parks, surrounded by a mixture of residential and commercial areas.

Little Paint Branch



Little Paint Branch originates in Montgomery County and flows through relatively undeveloped areas to its confluence with Paint Branch. Most of the stream is pool and riffle with a few channelized reaches in the vicinity of Interstate 95 and Briggs Chaney Road. Unlike most other tributaries to the Anacostia River, Little Paint Branch has few stream valley parks. This is because a large portion of its watershed is sparsely developed, such as the Beltsville Agricultural Research Center and the formerly private country clubs which are now part of the bi-county Fairland Regional Park.

The headwaters of Little Paint Branch are comprised of pool and riffle reaches. The

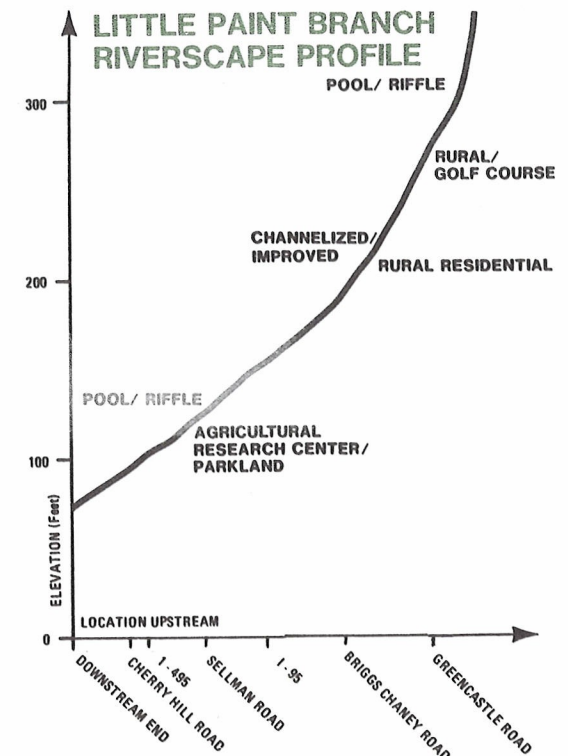
dense tree cover, clear water, and quiet surroundings make this a desirable area to visit. There are some paths that receive mostly local use. Unfortunately, these conditions do not extend past Briggs Chaney Road, where bank erosion and trash are evident. This section of the stream flows through essentially nonurbanized areas, which suggests that the erosion may be the result of the stream's natural meandering. In some places gabions have been installed to halt the erosion.

Farther downstream Little Paint Branch runs through Little Paint Branch Park. The channel here is largely pool and riffle with a rocky bottom and occasional mounds of deposited sediment. There are several areas of severe bank erosion which detract from an otherwise attractive, heavily used park setting.

Surprisingly, as Little Paint Branch flows through the Agricultural Research Center, conditions affecting the stream and its channel banks do not improve. There is a great deal of debris in the area, and modifi-



Little Paint Branch at Greencastle Road, near the Prince George's—Montgomery County line.

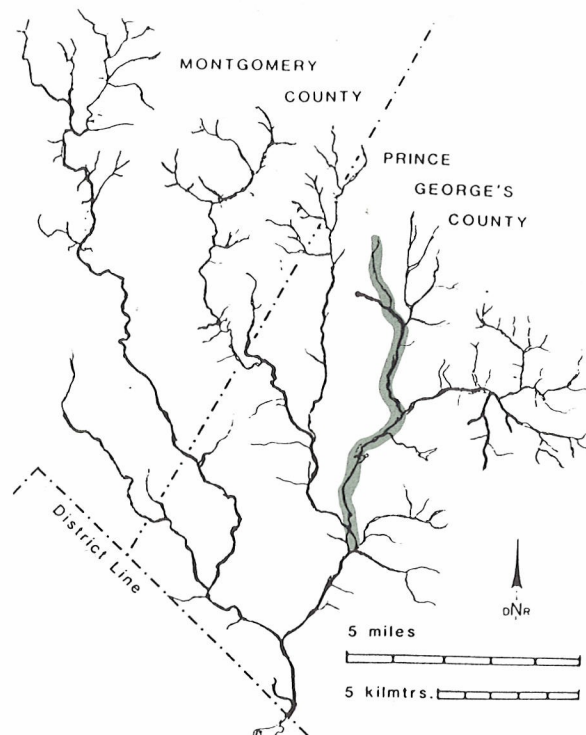


cations have been made to the channel. In addition, the Center has a small wastewater treatment plant that discharges into the stream.

In the vicinity of the Cherry Hill Road Recreation Area the stream has widened considerably and there are areas of gravel and coarse sand deposition.

Even in the farthest downstream reaches Little Paint Branch is very clear with little evidence of siltation. The channel bottom remains rock and gravel with only a small amount of fine sand and silt. However, some disturbance from off-road vehicles is noticeable and there is the continued presence of trash and limited channel erosion.

Indian Creek



Indian Creek originates in upper Prince George's County. The stream channel and water quality undergo drastic changes before the creek joins Paint Branch near the formation of Northeast Branch. Indian Creek's surrounding land uses also change considerably from rural, low-density residential to industrial and then to urban parkland.

Above Route 1 (Baltimore Avenue) Indian Creek is a pool and riffle stream flowing through land that is mostly rural. The stream banks are generally stable, but there is some sedimentation of the gravel bottom. Several unsightly dump sites exist near the stream, and sedimentation from major gravel processing facilities appears to be uncontrolled.

From Route 1 to Powder Mill Road the Indian Creek watershed undergoes a significant increase in urbanization. It is still a pool and riffle stream in this area but has deteriorated in appearance because of trash, lack of vegetative cover, and increased sedimentation. In addition, there is a significant lack of stream valley parks along most of the stream. A park system with wooded buffers along Indian Creek would add immeasurably to its scenic and recreational potential.

Efforts in the 1960s to impose controls on floodplain encroachment in the Indian Creek area were not effective. Thus, the WSSC Indian Creek Channel Project Study was undertaken in 1970 to alleviate flooding problems in Beltsville and Ammendale.

The scenic attributes of Indian Creek improve considerably below Powder Mill Road as the stream flows through relatively undeveloped land in the Agricultural Research Center. There is little evidence of channel erosion or siltation in this pool and riffle stretch. The stream is well-shaded and provides adequate cover for fish.

Near the Beltway the land use changes to residential, and the channel becomes more of a natural meander than a pool and riffle stream. The water is very clear and biologically productive; several species of fish and eel grass exist in the immediate vicinity of the Beltway. However, just downstream from the highway a protective wetland is being filled in and prepared for the future Greenbelt Metro Station.

The Greenbelt Road vicinity has a large number of industrial uses as well as sand and gravel operations. The stream is very turbid, full of debris, and exceptionally unsightly. Cement trucks have dumped their refuse along the bank, creating an ugly mixture of cement, trees, and eroding channels. Some of the industries may be sources of pollution, adding oil, grease and suspended solids. Efforts have been made to control industrial dumping and the sand and gravel operations, but enforcement has been ineffective.

Indian Creek at Greenbelt Road

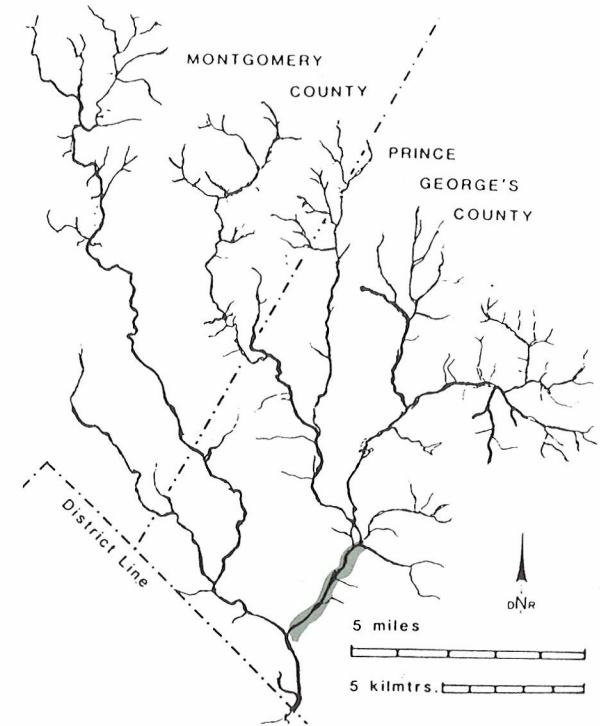


Below Greenbelt Road Indian Creek has been channelized for flood control, although at isolated places it reverts to a pool and riffle or natural meander stream. The lower reaches run through Indian Creek Park, which receives heavy recreational use. The park is surrounded by residential and commercial land and is quite scenic where its trails run along the steep slopes. The channelized sections of Indian Creek, however, are wide, shallow, turbid, unshaded, and unattractive. The effects of the College Park urban renewal project and possible filling for the Greenbelt Metro Station also could be detrimental.

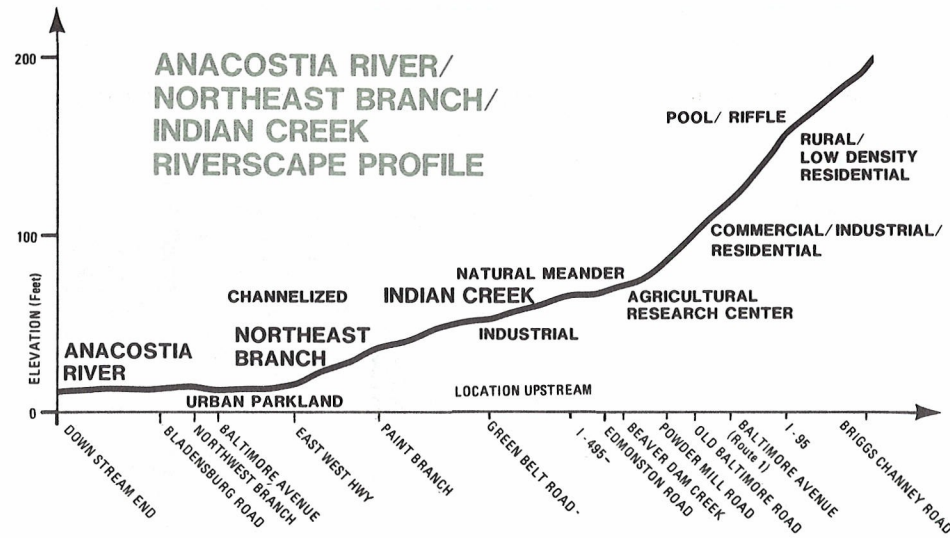
Beaverdam Creek and Beck Branch

Beaverdam Creek and Beck Branch begin, and converge with, Indian Creek within the Beltsville Agricultural Research Center. These are pool and riffle streams with gravel bottoms. They are bordered by a forest buffer and surrounded by agricultural lands for most of their lengths. Some areas of severe bank erosion are evident below the Baltimore-Washington Parkway. A very scenic pool exists in the vicinity of Research Road and is used frequently for fishing despite its relative inaccessibility.

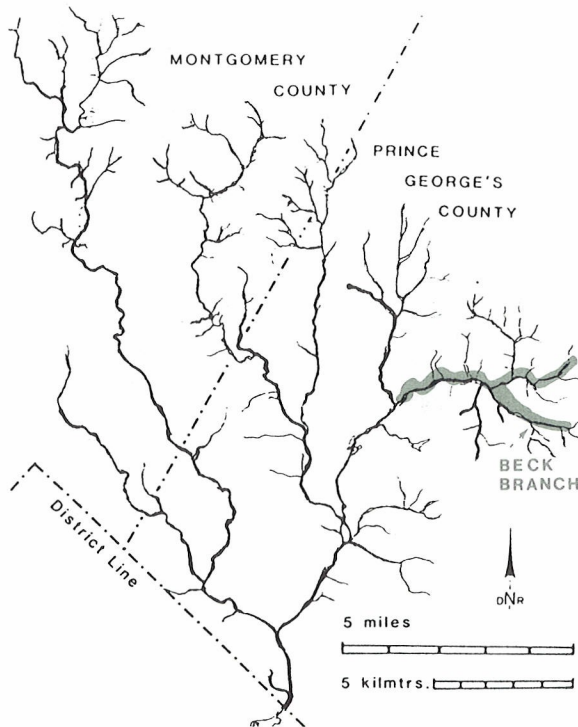
Northeast Branch



Northeast Branch is formed by the convergence of Paint Branch and Indian Creek. The entire length of the stream is now channelized in response to local demands. It is bordered by a stream valley park and surrounded by dense urbanization. The channel is wide and shallow with a sand and gravel bottom and has areas of sediment deposition. There is little evidence of aquatic life except for algae, which are particularly prevalent in the lower reaches. The park receives heavy use—especially the bike paths and picnic grounds. Although the park offers recreational opportunities, Northeast Branch is not particularly scenic nor does it provide good habitat for wildlife reproduction.



Beaverdam Creek and Beck Branch

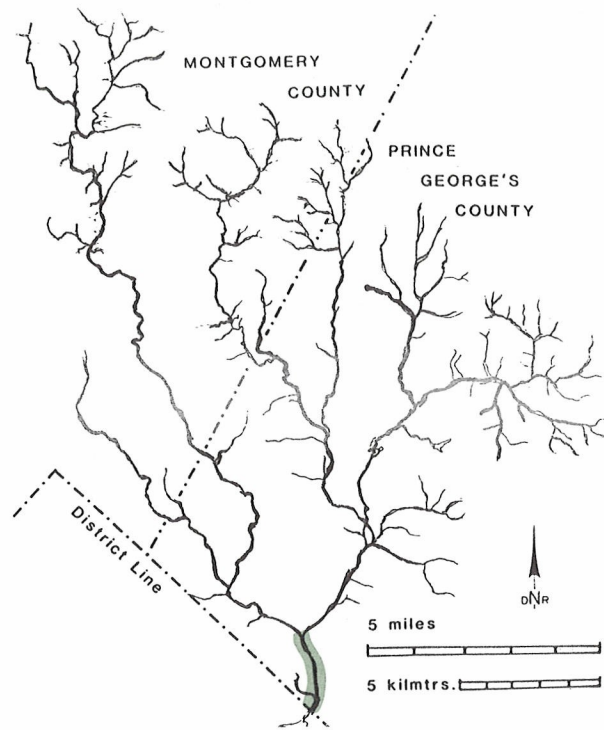


Beaverdam Creek in the Beltsville Agricultural Research Center



Northeast Branch in Riverdale

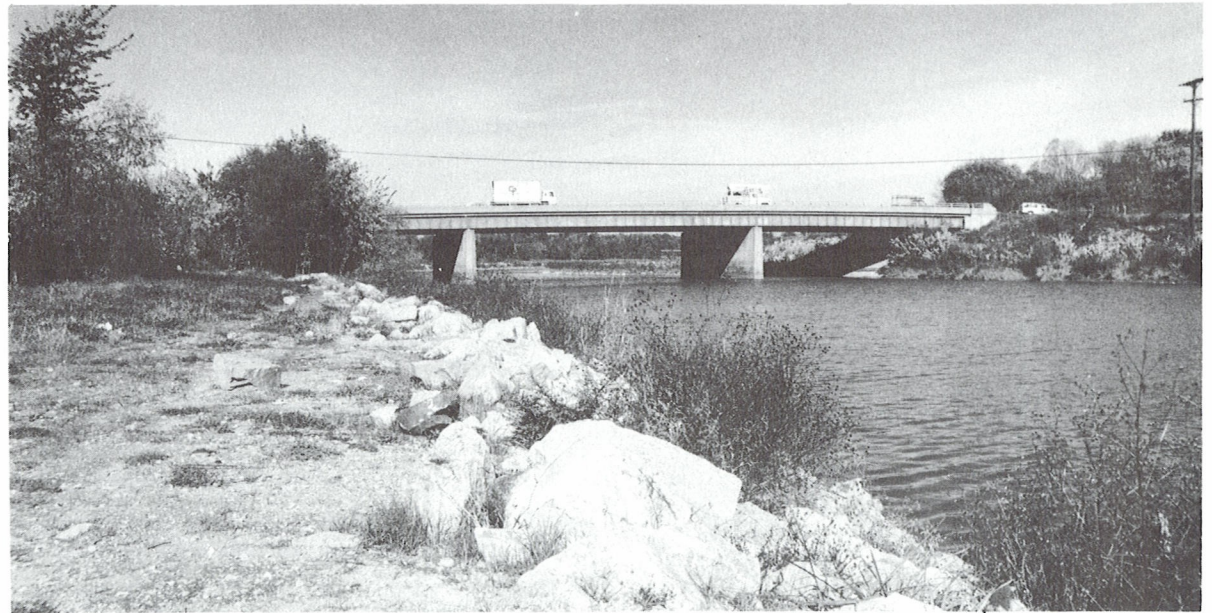
Anacostia River



Northwest and Northeast Branches join in Prince George's County to form the Anacostia River. The river changes from a channelized stream to a tidal river near Bladensburg. The bottom of the channel is heavily silted and covered with algae, which frequently slough off, forming mats. The channel banks are eroding in certain areas, and deposits of gravel, sand, and silt are common.

The tidal portion of the Anacostia River is highly turbid and slow-moving. This area is not very scenic due to the heavy silt load carried from upstream. The banks are composed of a fine muck, and the calm water collects trash from the upstream urban areas. Bank maintenance, dredging, and trash skimming are required continually. Riprap and a permanent stone seawall are

Confluence of Northwest Branch, left, and Northeast Branch, right, in Bladensburg



Anacostia River in Bladensburg

in place just below the Bladensburg Marina. Despite these conditions, the marsh areas of the tidal Anacostia are biologically productive. Of particular importance is a nesting area for waterfowl that deserves protection from any possible urban encroachment.

Recreational use in the tidal area centers around the marina and the Anacostia River Park. In addition, local plans call for the development of extensive trails paralleling the river and construction of a major outdoor recreation complex at Colmar Manor.

CHAPTER V

- Land Use Planning and Implementation

Many federal, state, and local agencies have responsibilities for protecting the Anacostia River and its natural and scenic qualities. These agencies, with a brief description of their responsibilities, are listed in the Appendix.

The following sections describe practices and local responsibilities concerning land use planning, erosion and sediment control, stormwater management, flood control, and water quality.

Land Use Planning and Park Acquisition

A major factor affecting the scenic and environmental quality of any watershed is the physical use of the land within the watershed and the compatibility of various uses with natural landforms. The variation of land use is determined through a three-phase planning process consisting of preparation of land use plans, zoning of property, and subdivision of land. Within the Anacostia River watershed, the Maryland-National Capital Park and Planning Commission has the authority and responsibility for preparation of land use plans, formulation of planning policy recommendations, making zoning recommendations, and full authority for approval of subdivisions.

Land use plans prepared by the Commission and approved formally by the County governments act as guides for the physical development of the watershed. The adverse effects of development on stream systems can be minimized by emphasizing in the plans such things as the compatibility of developments with natural landforms, stormwater management, and sediment

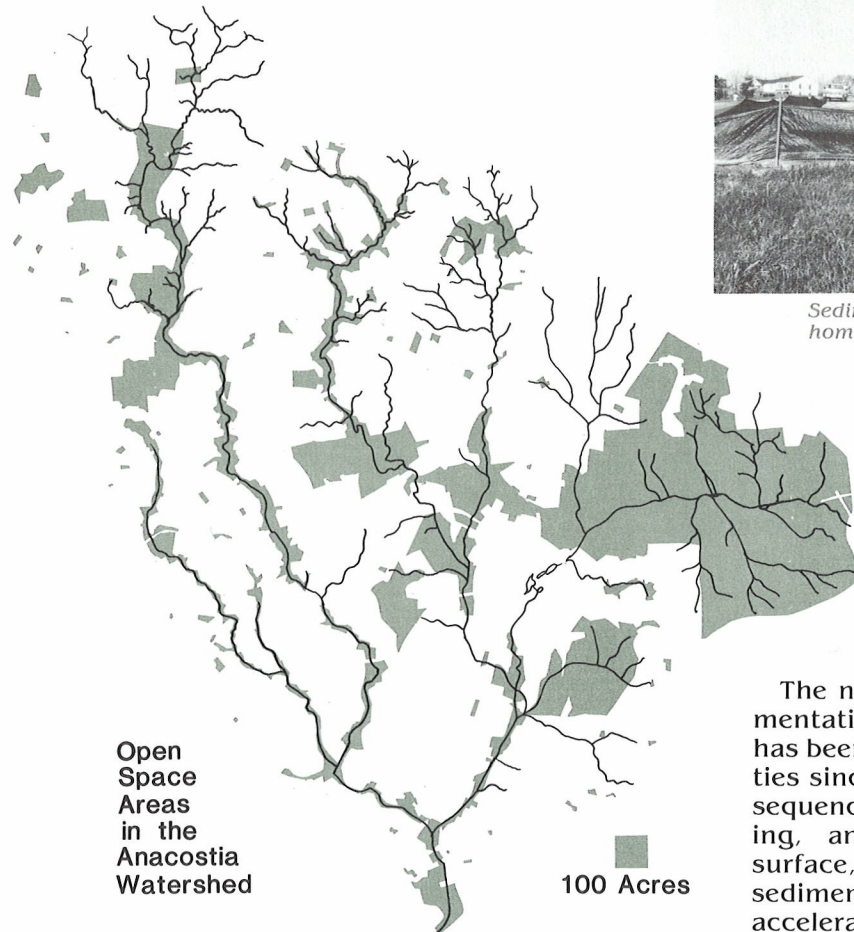
control. Such concerns have been recognized and are being incorporated to some degree in land use plans currently being developed by Montgomery and Prince George's Counties.

While land use plans recommend the type and density of land use desirable for a particular area, these recommendations can be implemented only through the zoning process, in which the appropriate zone (or zones) for each property is determined by a legislative act of the County Council. Both Prince George's and Montgomery Counties utilize a Sectional Zoning Map Amendment, whereby the zoning for an entire Planning Area is adopted at one time in order to implement an approved master plan. Both counties also employ Planned Unit Development (PUD) zones which allow flexibility in permissible uses, residential densities, and building intensities, and result in more efficient site design and environmental compatibility.

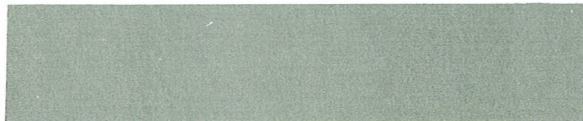
The third phase of the planning process is subdivision of land. This is any division of a lot, tract or parcel into two or more plots. Lot orientations, street alignments, and dedications for floodplains, parks, and open spaces are all determined during the subdivision process. The mandatory dedication of park land is an aspect of particular value in the preservation of stream valleys. Under this provision, a developer is required to dedicate a portion of his property for park and open space uses or pay a fee in lieu of dedication. Many acres of land have been preserved in this manner. Another important subdivision tool is the cluster subdivision, which allows a developer to group homes in a way that is more sensitive to environmental quality, and to provide more open space area for common use by resi-

dents. Use of the cluster concept is particularly recommended by the Commission where sensitive natural areas have been identified and can be set aside as conservation areas.





In addition to its planning authority, the Commission is also empowered to acquire, develop, maintain and administer a regional system of parks. Through the stream valley park acquisition program, many scenic and recreational areas have been preserved that would have otherwise been overused by urban/suburban development.



Sediment control measures at new home site in Silver Spring



Erosion and sedimentation in Sligo Creek

Erosion and Sediment Control

The natural process of erosion and sedimentation within the Anacostia watershed has been adversely affected by man's activities since the early colonial days. As a consequence of deforesting, cultivating, grading, and paving the watershed's land surface, the natural rates of erosion and sedimentation have been significantly accelerated.

To date, sedimentation of the stream system continues to be severe, particularly in the Bladensburg area. The current problem is of such magnitude that the Maryland-National Capital Park and Planning Commission maintains a dredge operated continually in the tidal portion of the river. Urbanization activities contribute significantly to the current sedimentation process. As a result of increases in the imperviousness of the land surface (the construction of parking lots, shopping centers, housing developments, roadways, etc.), the runoff from rainfall is greatly increased and

accelerated, causing serious erosion damage to the stream banks and channel bottom. The transport of sediment from unprotected land surfaces is also a major source of sedimentation within the watershed. The remaining agricultural areas, as well as existing construction sites and sand and gravel activities, contribute to the sedimentation of the stream system.

In addition to the potential loss of valuable topsoil, many other adverse impacts result from the deposition of sediment in natural waterways. These impacts include an increase in floodwater elevations, a loss of navigational potential, increased turbidity which degrades aesthetic and recreational values, water quality degradation, greater treatment costs for filtration, and the blanketing of fish and shellfish food supplies and reproducing areas.

Sediment control is required by: a) State law (Natural Resources Article Section 8 1101-1108), b) grading and sediment control ordinances within both counties, and c) WSSC regulations (see Index to Local Au-

thorities in the Appendix). Exemptions are provided for agricultural land management practices and the construction of single family residences on two or more acres. Montgomery County and the Montgomery Soil Conservation District have been leaders, both at the state and national levels, in developing sediment control programs.

Sediment control plans in general encompass two main aspects. One aspect is the use of perimeter controls which direct sediment-laden runoff to trapping devices such as traps or basins. These types of controls are intended to stop the majority of sediment from leaving the site. The second and more important aspect is to create as little erosion and sedimentation as possible. Recognizing that perimeter controls do not and realistically cannot trap 100% of the sediment that is produced, emphasis should be placed on this second aspect of minimizing erosion and sediment loads.

Compliance with the intent and not just the letter of the law is necessary to reduce the sediment load that reaches the Anacostia River. The cooperation and diligence of federal, state, and county transportation departments in minimizing the sediment damage caused by construction/development activity is mandatory as expanded transportation facilities are built. The same dedication applies to utility line construction as called for in the WSSC Utility Sediment Control Program.

Citizens and government agencies can play an important role in the enforcement of sediment control by reporting ineffective or neglected sediment controls to the appropriate authorities (see Appendix). One such action resulted in a considerably tighter application of sediment controls for a roadway project crossing a particularly sensitive environmental area. Without this effort an invaluable trout-spawning section of Paint Branch may have been destroyed by excessively high sediment loads.



Runoff from parking lot flows directly into Sligo Creek

Stormwater Management

The Montgomery Soil Conservation District has developed an On-Site Stormwater Management Policy for new development. This policy requires that the runoff generated by an increase in impervious areas must be stored on site. The storage capacity must be sufficient to contain the runoff from a two-year storm. This stormwater can be released at the site's pre-development runoff rate. Studies have shown that Maryland's streams are naturally sized to handle a two-year storm. Therefore, if a site is practicing two-year stormwater management, theoretically that site will not artificially accelerate erosion in the receiving stream.

The Montgomery County Planning Board has been preparing various watershed plans (as per Section 19—22 of the Montgomery County Code). To date, the County has adopted watershed plans for the Seneca, Muddy Branch, and Rock Creek basins. The staff is currently working on plans for other basins, including the Montgomery County portion of the Anacostia River watershed. (A final Technical Report is available from M-NCPPC, Montgomery County.)

Prince George's County's Program utilizes the leadership of a County Stormwater Management Task Force. Under its direction a comprehensive stormwater management plan was adopted that requires the preparation of individual watershed management plans. These plans identify the unique characteristics within a watershed and offer management strategies. In basins where plans have not been completed, on-site stormwater management requirements are evaluated on a case-by-case basis.

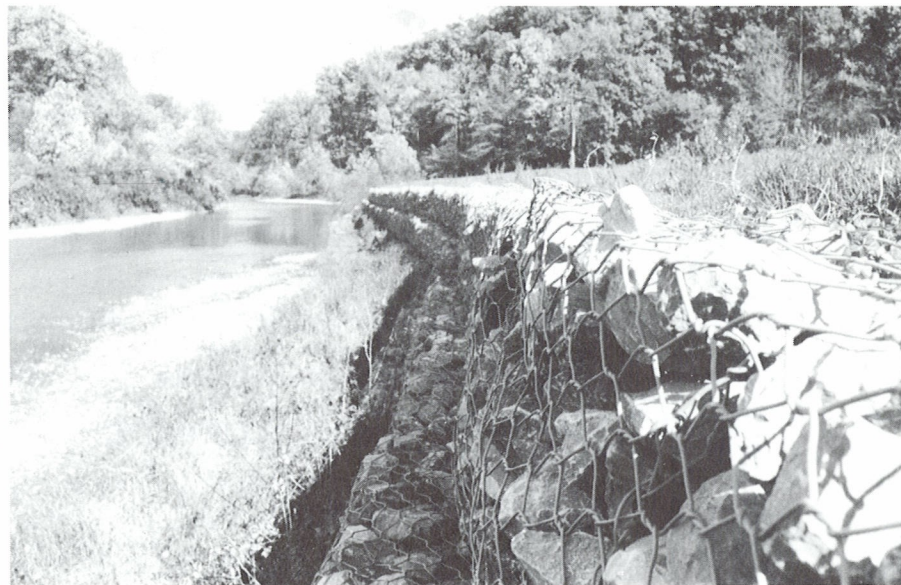
Today's trends are leaning away from on-site stormwater management and two-year storage requirements, and focusing instead on regional stormwater management and multiple storage controls (two-, ten-, one hundred-year storms). In both Montgomery and Prince George's Counties the regional program offers financial incentives to developers who elect to expand their normal on-site requirement to include the offsite drainage and larger storm frequencies. These financial incentives are based upon a WSSC-adopted fee schedule. The WSSC and Montgomery County also can utilize the Capital Improvement Projects funding mechanism. It is important to recognize that the problems and opportunities confronted in the development of a watershed are both numerous and complex. Therefore, it is essential that a comprehensive and balanced approach to stormwater management be taken—an approach that carefully examines and weighs all of the advantages and disadvantages associated with on-site and off-site controls. It also must be recognized that while stormwater management controls for new developments are becoming more sophisticated, there are still problems involved in handling the storm runoff from older, pre-requirement developments.

Flood Control

Little Paint Branch: Floodwaters under B&O Railroad bridge during 1975 storm.



Gabions along Northeast Branch in College Park



A fundamental concern in the stream valley acquisition program is the control of lands susceptible to flooding. Public ownership of the stream valleys regulates development within the floodplain and in many cases allows the parkland to remain in a natural state. Such a practice not only provides numerous recreational benefits, but also minimizes loss of life and the damage to personal property resulting from floodwaters. Even though a large portion of the stream valleys within the Anacostia watershed are now under public ownership, there still remain several areas of private development within the natural floodplain.

Records of flooding along the Anacostia River and its major tributaries exist from the late 1800s. Many of the historic floods of the watershed caused extensive damage to private residences, commercial properties, industrial complexes, roadways, and bridges. Occasionally, accidents resulting in bodily injury or loss of life have occurred as a result of the treacherous floodwaters. The severe flooding conditions of the past

have generally occurred in the southern portion of the watershed in Prince George's County. The tributaries responsible for conveying the destructive floodwaters are the lower reaches of Sligo Creek, Northwest Branch, Indian Creek, Paint Branch, Northeast Branch, and the Anacostia River. Major developed areas with a history of floodwater inundation include the communities of Colmar Manor, Cottage City, Bladensburg, Edmonston, Riverdale, Hyattsville, Brentwood, Queenstown, and Lewisdale.

The past flooding conditions of the upper portion of the watershed in Montgomery County are not as numerous or severe. Problems there involve a limited number of residences, commercial properties, and bridges.

Major flood control projects have been initiated in order to alleviate the troublesome floodwaters of the lower Anacostia watershed. Many of these projects were instituted at local demand by the U.S. Army Corps of Engineers in coordination with the Washington Suburban Sanitary Commission. These

include the realignment and excavation of reaches in Sligo Creek, Northwest Branch, Paint Branch, Indian Creek, Northeast Branch, and the Anacostia River. Many of the channelized sections are unattractive and environmentally damaging, but have considerably reduced flooding damages and hazards. Projects of this nature were initiated in the early 1950s and continued until the early 1970s. There were few alternatives available for the prevention of flood damages, because many buildings were constructed within the floodplains prior to the enactment of federal, state, and local laws prohibiting construction in flood-prone areas. Other existing flood controls within the watershed include earthen levees, storage ponds, impoundments, reconstructed bridges, and pump stations for the conveyance of stormwater.

Some other options that can be considered include public purchase of residences or other buildings subject to flooding, constructing a series of additional impoundments to reduce flood peaks, and flood-proofing the existing buildings.

Water Quality

The quality of water is generally defined by its chemical, physical and biological properties, and how these properties affect suitability for drinking, household uses, agriculture, recreation and other uses. The State of Maryland has classified its waters into four major categories according to use.

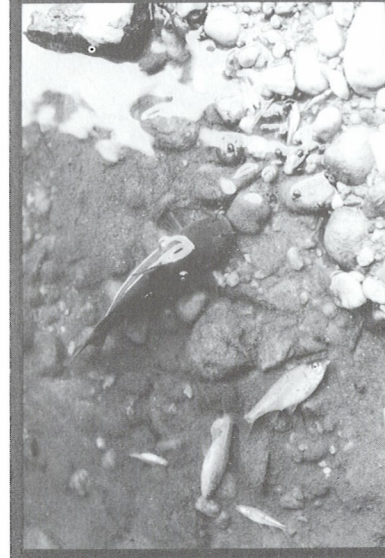
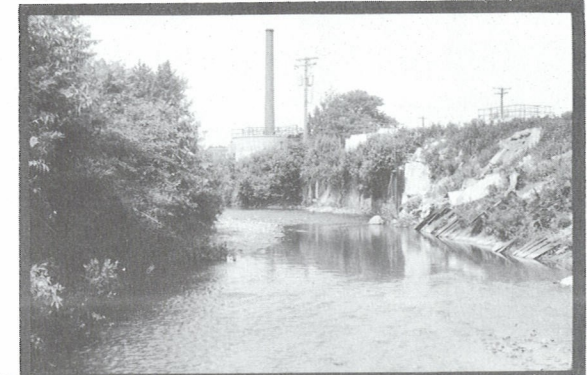
Class I—Water Contact Recreation and Aquatic Life: waters which are suitable for water contact, sports, play and leisure time activities.

Class II—Shellfish Harvesting: waters where shellfish are propagated, stored or gathered for marketing purposes. (This category is not represented in the Anacostia River watershed.)

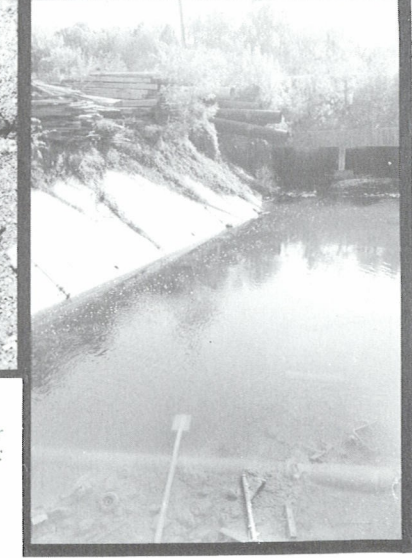
Class III—Natural Trout Waters: waters suitable for the growth and propagation of trout.

Class IV—Recreational Trout Waters: waters which are capable of holding or supporting adult trout for put-and-take fisheries.

Stream quality is generally reflective of the land which it drains. Therefore, modifications of the natural landscape result in changes in the quality and quantity of stormwater runoff. The quality of stormwater runoff is primarily affected by two major generalized land use types: urban/suburban, and rural/agricultural. In the urban/suburban areas stormwater flows over sidewalks, streets, parking lots, and other highly impervious areas, washing off substances such as petroleum derivatives (gas, oil, grease, etc.), road salt, de-icers, litter, pet wastes, lawn and garden products, and disintegrated asphalt. In rural/agricultural areas improperly controlled stormwater flows over cultivated fields, feedlots, and pastureland, washing off pesticides, fertilizers, and livestock wastes.



Scenes along Little Paint Branch, lower left and upper right, and Indian Creek



While the rate at which these substances are washed off is much quicker in urban/suburban areas, the overall effect from both types of land uses is essentially the same. Once carried into natural watercourses in various concentrations, all of the above substances become pollutants. They are responsible for the subsequent deterioration of water quality in the form of increased biochemical oxygen demand and excessive nutrient levels.

If stormwater runoff is left unmanaged, it

may create problems stemming from accelerated rates of erosion and sedimentation. One of the most serious concerns is the potential loss of valuable topsoil. Many other adverse impacts result from the transport and deposition of sediment in natural waterways. These impacts include accelerated erosion of streambanks, increased turbidity, increased treatment costs at water filtration facilities, and the blanketing of fish and shellfish food supplies and nesting areas.



CHAPTER VI

Management Overview and Recommendations

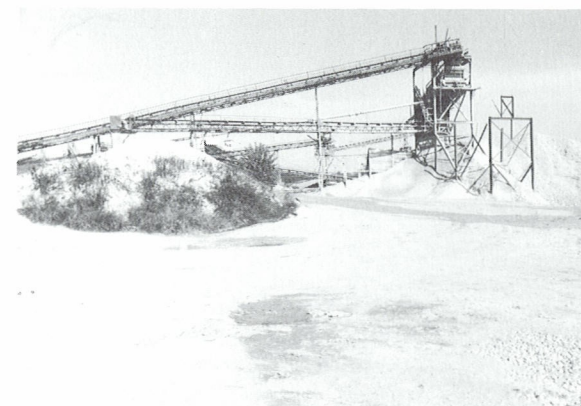
The overall management objective for the Anacostia River should be the preservation of existing scenic sections and improvement of degraded sections of the river. The actions or lack of preventive measures taken in the past, the high degree of existing urbanization in the lower half of the watershed, and the multijurisdictional nature of the river create serious obstacles to accomplishing this objective. Nevertheless, there is reason to expect that future deterioration of the Anacostia River can be minimized and improvements to existing conditions can be achieved.

As discussed in the previous chapters, there are numerous ordinances and laws designed to protect and preserve rivers and their tributaries. Fortunately, there is both interest and commitment on the part of the local jurisdictions and the State to protect the Anacostia River. However, all concerned parties—the Montgomery and Prince George's County Councils, the Maryland-National Capital Park and Planning Commission, the Washington Suburban Sanitary Commission, the Maryland Department of Natural Resources, and other governmental agencies, as well as private organizations and individuals—must strive to balance human needs with the protection and improvement of the river system.

Major Problems

The problems common to most tributaries of the Anacostia River are:

- *land surface and channel erosion, both natural and artificially accelerated*
- *instream and near-stream litter and trash*
- *near-stream dump sites*
- *construction site erosion and consequent sedimentation*
- *destruction of aquatic and riparian habitats*
- *malfunctioning sanitary sewers (surcharging and leaking sewers)*
- *sanitary sewer locations along and across streams*
- *stormdrain outfalls creating erosion and undergoing erosion*
- *insufficient path maintenance*
- *lack of trees or other vegetation on many channelized reaches*
- *non-point sources of stormwater runoff (residential, commercial, industrial, agricultural)*
- *accumulations of debris that block the flow of streams*
- *badly designed or placed riprap*
- *illegal and undesirable discharges (oil and grease, chlorinated water from swimming pools, pesticides, litter, etc.)*



- *discharges from sand and gravel operations*
- *bacteria levels above State standards at all water quality monitoring sites*
- *discharges from failing septic systems*
- *lack of current coordinated overall watershed data*

Major Recommendations

1 The Anacostia River system should be considered as a whole rather than a series of separate jurisdictional responsibilities. In order to accomplish this, better communication and cooperation among agencies within each county and between the counties is mandatory. In addition, each county should continue and complete its watershed management plan.

2 A public education and information program should be established. Such a program must stress the unique features of the river, such as its excellent park and recreation system, its wildlife habitats

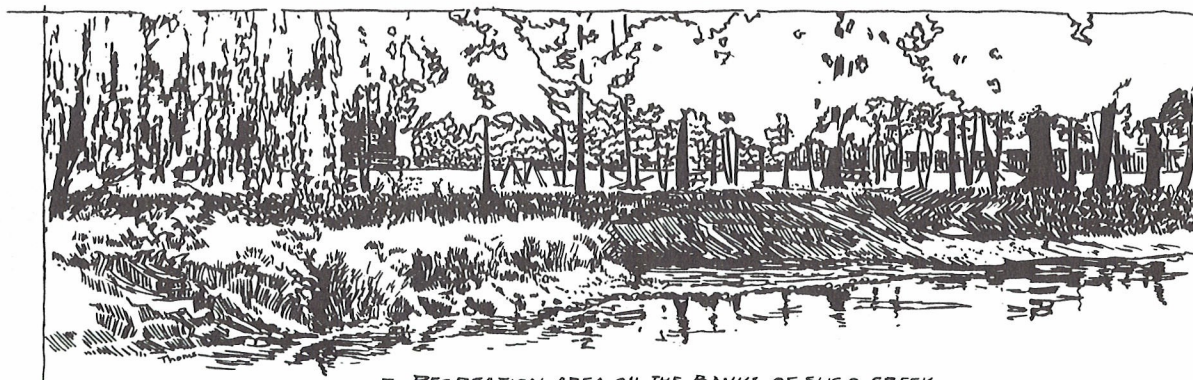
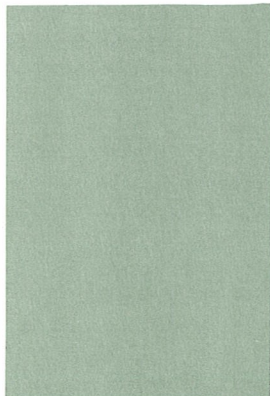
and the diverse riverscapes, as well as those steps that can be taken to protect these assets.

3 The continuation of the stream valley park acquisition program (see *acquisition* in Glossary) of the Maryland-National Capital Park and Planning Commission is critical to the protection and improvement of the Anacostia watershed. The study *Paint Branch: Preservation of a Unique Trout Resource* (M-NCPPC, CH2M HILL, 1980) indicates that the absence of stream-side vegetation, which the parks provide, and the conversion of forested land to urban

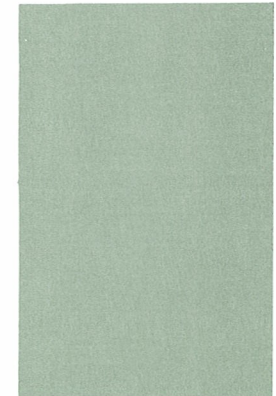
uses can have significant impacts on the water quality and ecological balance of a stream. Thus, much of the aesthetic and recreational value of the Anacostia River system would surely be lost without the existing stream valley parks. The acquisition program provides excellent recreational opportunities and can have a favorable effect on the streams' quality and ecology. Future park acquisitions should be directed at Paint Branch, Little Paint Branch, Northwest Branch, Indian Creek, Sligo Creek and Long Branch as these tributaries continue to urbanize.

General Recommendations

- Emphasize environmental concerns in the land use planning process
- Install educational displays in heavily used areas to present information on the unique features of the Anacostia River
- Implement stricter enforcement of litter and dumping laws
- Keep stream channels clear of debris
- Stress strict compliance with stormwater management ordinances
- Reduce stormwater flows from older, pre-requirement developments
- Reduce non-point contamination and runoff from agricultural and urban areas
- Implement stricter enforcement of sediment control laws and provide more frequent inspection and staff
- Minimize construction on steep slopes or areas adjacent to streams
- Expand the Washington Suburban Sanitary Commission's "Find it and Fix it" sewer maintenance program
- Minimize stream crossings and channel modifications
- Increase path maintenance and the placement of trash cans in parks
- Expand floodplain mapping for the Anacostia River's tributaries
- Continue efforts to either remove or protect older private developments in the natural floodplain
- Avoid clearing streamside vegetation
- Where appropriate, use trees or other vegetation for bank stabilization and restoration and to increase stream shading in channelized areas
- Encourage innovative and alternative wastewater treatment facilities
- Minimize additional stream enclosures
- Reinstitute and coordinate water quality sampling programs
- Identify and repair failing septic systems
- Restore and maintain natural conditions along the river
- Plant grass or other vegetation in areas of bare land adjacent to streams
- Institute fish-stocking programs in all streams where conditions are favorable
- Repair damaged riprap and ensure that new riprap is installed properly
- Post boating speed limits to reduce bank erosion in navigable waters
- Encourage use of conservation easements by private property owners
- Encourage use of oil traps for on-site storm drains in industrial areas



— RECREATION AREA ON THE BANKS OF SLIGO CREEK —



Special Recommendations

Sligo Creek

- Reduce erosion that is undermining Sligo Creek Parkway
- Improve roadway drainage and outfalls that discharge into the stream
- Stabilize eroding streambanks, particularly in the East-West Highway area.
- Support the concept of a bi-county Sligo Creek stormwater management program

Long Branch

- Discontinue further stream enclosure—especially at the headwaters
- Expand stream valley park property—especially at the headwaters

Northwest Branch

- Discourage and remove graffiti around boulders and gorge
- Improve the fish passage at the 38th Street Bridge
- Increase recreational opportunities
- Discourage domestic animal and livestock access to the stream
- Install tidal markers to facilitate enforcement of fishing regulations
- Improve historical presentation of Adelphi Mill

Paint Branch

- Maintain streamside vegetation and follow other concepts of *"Paint Branch: Preservation of a Unique Trout Resource"* for upper watershed
- Expand park trail system downstream of Powder Mill Road

Little Paint Branch

- Control waste disposal from the Beltsville Agricultural Research Center
- Stabilize channel banks upstream of Powder Mill Road
- Clear banks of debris and inappropriate riprap

Indian Creek

- Investigate sand and gravel operations as well as other industries for compliance with discharge and sediment control regulations
- Clean up dump sites in upper watershed; post "no dumping" signs
- Provide vegetative cover for disturbed areas below the Beltway
- Preserve as much of the wetland below the Beltway as possible

Beaverdam Creek and Beck Branch

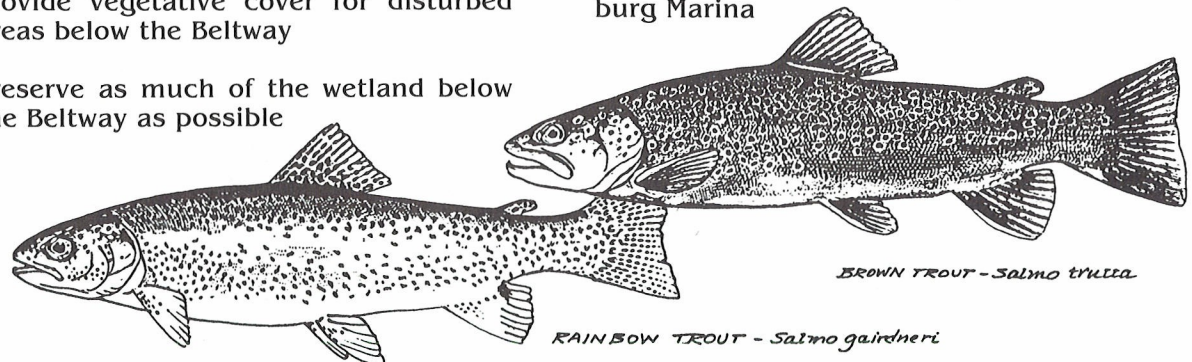
- Construct and maintain nature trails
- Control waste disposal from the Beltsville Agricultural Research Center

Northeast Branch

- Install tidal markers to facilitate enforcement of fishing regulations

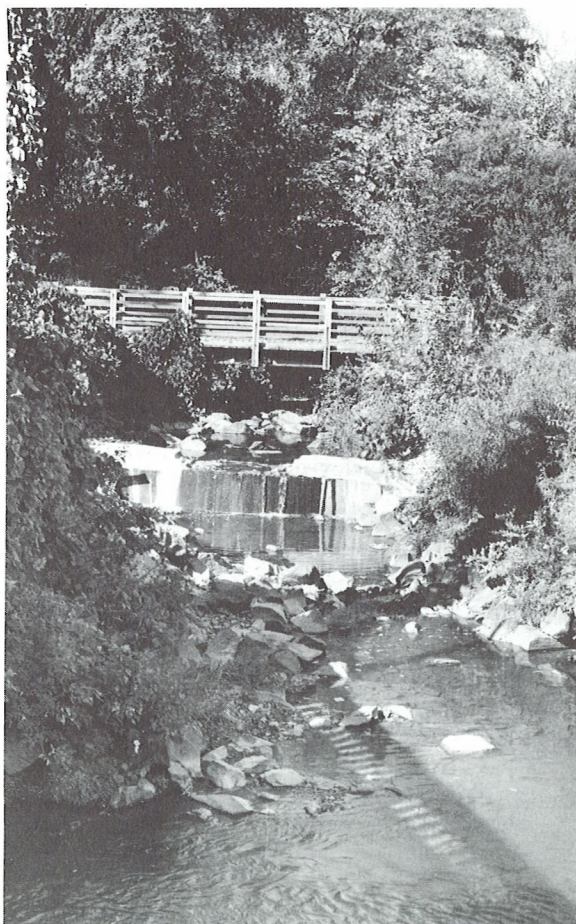
Anacostia River

- Preserve marsh areas and wetlands
- Stabilize channel banks along channelized sections
- Restore and develop historic port of Bladensburg
- Clear banks of unsightly riprap and debris
- Remove excessive deposits and debris from upstream side of road crossings
- Increase maintenance and dredging of river channel downstream of the Bladensburg Marina



Glossary of Terms

The words defined in this glossary are intended to clarify the meanings and terms contained within the study. If a word or term does not appear in this glossary, its meaning is presumed to reflect the accepted logical and common use.



Small tributary of Northeast Branch in Riverdale

acquisition—The act of obtaining property or property rights by purchase, donation, exaction, or escheat.

buffer—An area of land designated or managed for the purpose of separating and insulating two or more land areas whose uses conflict or are incompatible.

conservation—Rational use, renewal, increase, and protection of resources, and those practices which maintain or improve the quality of the environment.

easement—A legally acquired right of use, interest, or privilege of an individual or the general public in land owned by another. Such easements are granted, for example, for accessibility or for recreation use.

effluent—A discharge of pollutants in the environment, partially or completely treated, or in their natural state. Generally used in regard to discharges into waters.

fall line—A line of rapids and waterfalls where streams descend from the crystalline rocks of the Piedmont down to the easily eroded sands and clays of the Coastal Plain.

floodplain—The relatively flat or low lying area adjoining the channel of a river, stream, lake or other body of standing water which has been or may be covered by flood water.

gabion—A basket or cage filled with earth or stone and placed as, or as part of, a bank-protection structure.

infiltration—The entering of water through the interstices or pores of a soil.

non-point source—Diffuse sources of pollution, usually not associated with a structure such as an effluent pipe or sewer drain.

nutrients—Elements or compounds essential as raw materials for organism growth and development—for example, carbon, oxygen, nitrogen, and phosphorus.

off-site stormwater management—The design and construction of a facility necessary to control stormwater runoff from more than one development.

one hundred year storm—A storm which has a 1% probability of occurring within one year.

on-site stormwater management—The design and construction of a facility necessary to control stormwater runoff from one development.

outfall—The point of a sewer, drain, or conduit where an effluent is discharged.

point source—Pollution from a traceable source—such as an effluent pipe or sewer drain.

riparian—Relating to or living or located on the bank of a natural watercourse.

riprap—Broken stone or boulders placed compactly or irregularly on dams, levees, or similar embankments for protection of earth surfaces against the action of waves or currents.

river basin—The total area drained by a river and its tributaries.

runoff—That portion of precipitation that exceeds the infiltration rate of the soil. Runoff can pick up pollutants from the air or the land and carry them to the receiving waters.

sedimentation—The act or process of depositing solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site or origin by air, water, gravity, or ice, and is deposited at the base of the slope.

sewage—The total of organic waste and wastewater generated by residential and commercial establishments.

sewer—Any pipe or conduit used to collect and carry away sewage or stormwater runoff from the generating source to treatment plants or receiving streams. A sewer that conveys household and commercial sewage is called a sanitary sewer. If it transports runoff, rain or snow, it is called a storm sewer or stormdrain. Often stormwater runoff and sewage are transported in the same system (combined sewers).

sewer infiltration—The water entering a sewer system, including sewer service connections, from the ground through such means as, but not limited to, defective pipes, pipe joints, and manhole covers.

site plan review—A procedure by which the planning staff and the Planning Board review an applicant's proposed site development plan to assure that it 1) meets the zone's stated purposes, standards and/or criteria in encouraging ingenuity and originality in individual site design, 2) provides adequately for necessary facilities, and 3) protects certain physiographic features as well as adjacent properties.

stormwater management—The collection, conveyance, storage, treatment, and disposal of stormwater runoff in a manner to prevent accelerated channel erosion, increased flood damages, and/or reduction of water quality.

stream valleys—Floodplains and adjacent slope areas directly associated with a stream.

subdivision—A parcel of land divided into a block or blocks, lot or lots, or plot or plots for immediate or future use or sale, or for building developments.

surcharging—The "backup" effect when pipes carry more than their capacity.

ten-year storm—A storm event which has a 10% probability of occurring within one year.

two-year storm—A storm event which has a 50% probability of occurring within one year.

urban runoff—Stormwater from city streets and gutters that usually contains litter and organic and bacterial wastes.

waste treatment facilities—Any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. In addition, any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including waste in combined stormwater and sanitary sewer systems.

watershed—An area surrounding a river or stream, such that water from all points in this area flow through a common point.

wetland—Lands where saturation with water is the dominant factor determining the nature of soil development, and the types of plant and animal communities living in the soil or on its surface.

zoning—The classification of land by types of uses permitted and prohibited and by densities permitted and prohibited.



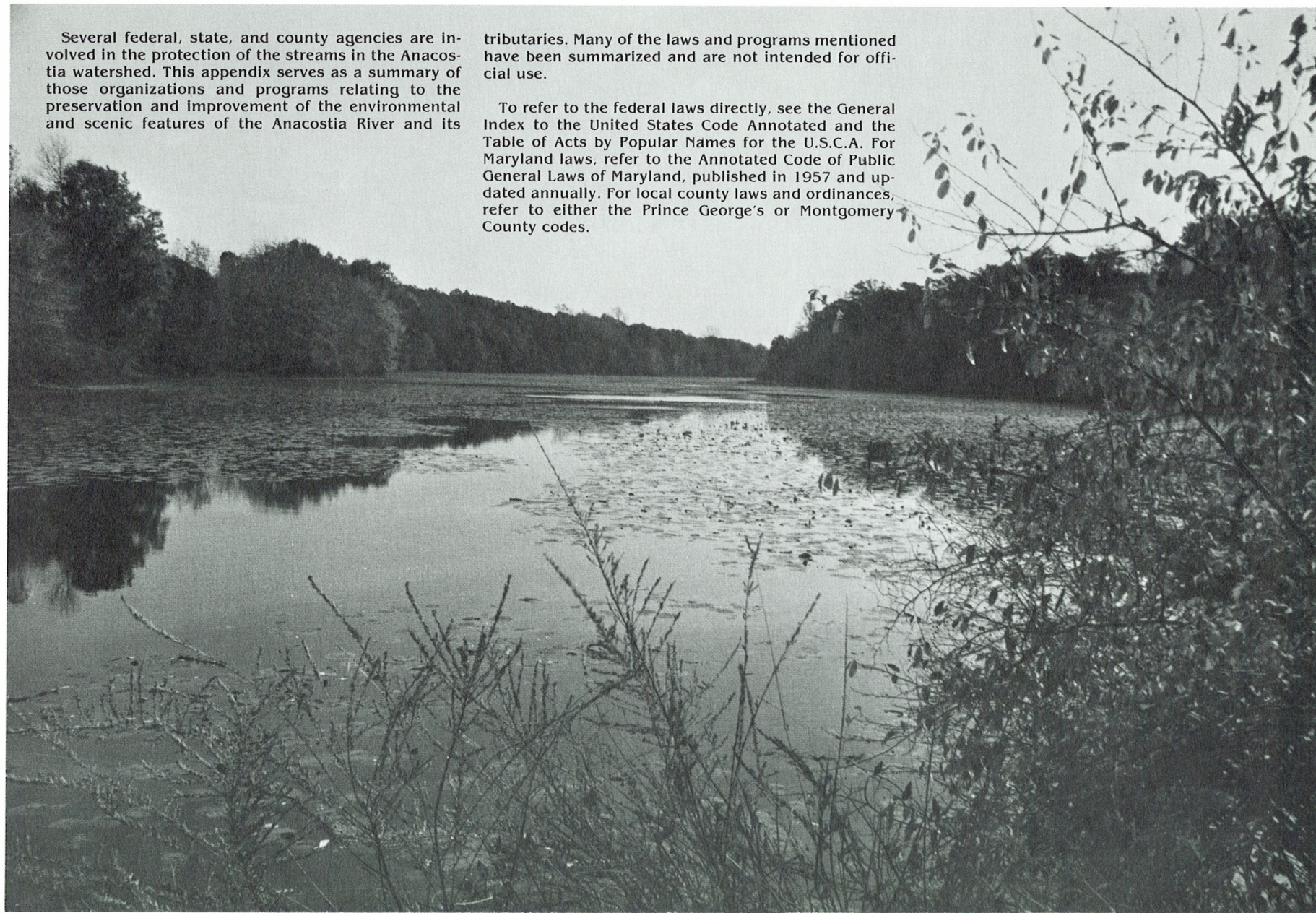
Northwest Branch above the Beltway

Appendix Government Aids to River Protection

Several federal, state, and county agencies are involved in the protection of the streams in the Anacostia watershed. This appendix serves as a summary of those organizations and programs relating to the preservation and improvement of the environmental and scenic features of the Anacostia River and its

tributaries. Many of the laws and programs mentioned have been summarized and are not intended for official use.

To refer to the federal laws directly, see the General Index to the United States Code Annotated and the Table of Acts by Popular Names for the U.S.C.A. For Maryland laws, refer to the Annotated Code of Public General Laws of Maryland, published in 1957 and updated annually. For local county laws and ordinances, refer to either the Prince George's or Montgomery County codes.



Beck Branch in the Beltsville Agricultural Research Center

INDEX TO SELECTED FEDERAL PROGRAMS AND AUTHORITIES

Flood Control Programs and Agencies

The U.S. Army Corps of Engineers under the Civil Works Program has many responsibilities including flood control, water supply, enhancing and conserving fish and wildlife, water quality control, and major drainage.

The Flood Control Act of 1936 authorizes the U.S. Army Corps of Engineers to conduct studies and construct structures for flood alleviation in major streams and the Department of Agriculture to investigate watersheds for flow and erosion control; it also establishes a policy of federal cost-sharing for flood control works. The Flood Control Act of 1970 extends the authority of the U.S. Army in the Department of Defense to make plans, investigations, and improvements for flood control and allied purposes.

The Watershed Protection and Flood Prevention Act of 1954 provides for the cooperation of the federal, state, and local authorities for watershed planning of areas less than 250,000 acres. The plans focus on soil erosion, floodwater, sediment damages, ways to conserve and properly utilize water, and the use and conservation of land. The U.S. Department of Agriculture offers technical and financial assistance to implement the work plans.

The National Flood Insurance Act was passed in 1968 and extended with the Flood Disaster Protection Act of 1973. Administered by the Federal Insurance Administration in the Department of Housing and Urban Development, provisions were made for mandatory flood insurance and require the adoption of "floodplain ordinances" by local governments that receive federal reconstruction funds for flood damage.

Federal Highway Administration

The Bureau of Public Roads is responsible for the Federal Aid Highway Program. This program provides for construction of the Interstate Highway System, and improvement of nearly 900,000 miles of other federal-aid primary and secondary roads and their urban extensions. Such construction includes culverts, ditches,

and all drainage through land required for the roadways; the highway drainage program under the supervision of the Bureau of Public Roads is, consequently, one of the largest governmental programs concerned with water control.

Wetland Protection Program

The Water Bank Program for Wetland Preservation Act authorizes long-term land use agreements between the U.S. Department of Agriculture and landowners to conserve water and to protect migratory waterfowl habitats. The USDA can enter into 10 year agreements with landowners possessing prime wetlands for waterfowl nesting and breeding. Agreements include provisions for annual payments to wetland owners and for the renewal of the agreements.

Soil Conservation Programs

The Soil Conservation and Domestic Allotment Act authorizes cost-share payments through the USDA Agricultural Stabilization and Conservation Service to farmers, ranchers, and woodland owners for pollution prevention and abatement practices.

Federal grants are also available to promote and aid soil conservation measures. Grants are provided through the Agricultural Credit Chapter for the establishment of soil conservation practices and the development of facilities for waste disposal and drainage. Loans are also available to public and quasi-public agencies.

Federal, state, and local organizations may obtain loans to execute conservation plans through provisions of the Bankhead-Jones Farm Tenant Act. In addition, loans are available for projects involving control of non-point water pollution. Loans may be used "for installing measures and facilities for water quality management and for the control and abatement of agriculture-related pollution".

The Soil and Water Conservation Expenditure provisions of the Internal Revenue Code allows income deduction for expenditures related to soil and water conservation measures such as leveling, grading, terracing, drainage ditch construction, contour furrowing, and planting of windbreaks. Deduction of any one year may not exceed 25 percent of the gross income from farming.

Forest Management Program

The USDA Forest Service provides technical and financial assistance for the following activities: (1) improving fire, insect, and disease control, (2) developing multiple use management so as to obtain optimum potential of forest resources, (3) improving harvesting, processing and marketing of forest products, and (4) to stimulate reforestation and timber stand improvements.

The Sustained Yield Forest Management Act authorizes the establishment of sustained yield units, such as federally owned and administered forest land and private land covered by cooperative agreements. A reduction of soil erosion, sedimentation, and water pollution are benefits of sustained yield management.

The objectives of the Forestry Incentives Program (1970) and the Agricultural and Consumer Protection Act of 1973 are to increase the supply of timber by non-industrial private landowners through cost-sharing assistance of expenses for planting trees or improving a stand of forest trees.

Water Pollution Control Programs and Agencies

The primary purpose of the Federal Water Pollution Control Act Amendments of 1972 is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." This goal will be achieved through research and investigations and then incorporating the information into comprehensive programs for water pollution control; that is, preventing reducing, or eliminating water pollution. Grants are available for pollution control programs, research and development, and educational institutions.

The Environmental Protection Agency has primary responsibility for regulation of air and water pollution and solid wastes, and for controlling the environmental effects of pesticides and radiation.

The Council on Environmental Quality was created by the National Environmental Policy Act of 1969 to formulate and recommend national policies to promote the improvement of the quality of the environment.

INDEX TO SELECTED STATE AUTHORITIES



Paint Branch near Powdermill Road

DEPARTMENT OF NATURAL RESOURCES

The Department is responsible for natural resources administration, management, research and development; for the development of coordinated policies for the conservation, enhancement, wise use, and perpetuation of the natural resources of the State; and the coordination and direction of comprehensive planning in the area of natural resources.

Assistance and Information

This office serves as a public interest center for the Department of Natural Resources. It is the principal office where the public obtains information about Maryland's natural resources activities.

Capital Programs Administration

Land Planning Services is responsible for the planning related to the acquisition and development of public lands administered by the Department of Natural Resources. The work of this section is divided into four major activities; park master planning; Scenic and Wild Rivers Program; acquisition mapping and natural heritage—environmental review.

Program Open Space coordinates the purchase of Natural Resources lands. The program is funded through a transfer tax on all real estate transactions in Maryland. Program Open Space also obtains federal grants to assist

funding land acquisition and development, administers state and federal grants to Maryland's subdivisions for local recreation and open space, and develops and maintains the Helen Avalynne Tawes Gardens. The Design and Construction Division is responsible for the design and development of Natural Resources facilities.

The Shore Erosion Control Program is responsible for providing financial and technical assistance to waterfront property owners with shore erosion problems on the Chesapeake Bay, its tributaries and in the Atlantic coastal region. Financial assistance through the Shore Erosion Control Construction Loan Fund is provided to qualified property owners. Under this program interest-free loans are provided for a period up to 25 years. Technical assistance is available to property owners who do not qualify for financial assistance.

The Land and Property Management Program is responsible for all record keeping associated with Department-owned land.

Maryland Forest, Park and Wildlife Service

Responsibilities include land acquisition, timber sales, forest recreation, watershed management, forest protection and maintenance. Educational programs are also provided to elementary school students. Other programs involve fire preparedness, insect and disease protection, urban forest planting, roadside tree supervision, street tree inventories, tree expert licensing, and private-woodland owner assistance.

Of the nearly 80,000 acres of public land managed by the department, nearly 74,000 acres remain in a natural state. The remaining 6,000 acres are improved for public recreational enjoyment. Park improvements include roads, parking lots, buildings, utilities, and those facilities which people associate with state parks, namely campgrounds, picnic areas, playgrounds, trails, and water-related facilities.

Wildlife responsibilities include regulating seasons, bag limits, and methods of taking game animals and fish, assisting other state agencies and private landowners in land management and wildlife planning, issuing permits and licenses for activities that directly affect wildlife, providing technical assistance for nuisance control, and managing areas for public wildlife enjoyment, including hunting, fishing, trapping, field trails, nature study and photography.

Natural Resources Police Force

The Natural Resources Police Force is responsible for enforcement of all laws and regulations to protect the natural resources of Maryland, the State Boat Act and the criminal laws of Maryland on both tidal and non-tidal waters.

The Field Enforcement Section enforces laws pertaining to the protection of all wildlife species. The Hunter Safety Program provides mandated classroom training and lectures on a statewide basis to ensure firearms safety and good hunting practices.

Water Resources Administration

The Administration is responsible for the protection, management and enforcement of all water resources of the State. Through enforcement, permitting and planning activities, the Administration seeks to ensure the quality and quantity of the waters of the State.

In administering the Maryland Wetlands Act, the Wetlands Division is responsible for regulating activities in State and private wetlands. State wetlands are in tidal areas below the mean high water mark. Private wetlands are those above the high tide mark but subject to periodic tidal influence. Any dredging or filling in State or private wetlands also requires a federal permit from the U.S. Army Corps of Engineers.

The Watershed Management Division issues permits covering small ponds, waterway obstructions, waterway constructions, erosion and sediment control, maintenance and repairs, and surface mining.

Other divisions have responsibility for coordinating the National Flood Insurance Program and providing flood management technical assistance to local subdivisions, dam safety, laboratory services and water supply.

Maryland Environmental Service

The MES provides water, wastewater and solid waste management services on a non-profit basis. Customers are local governments, private businesses and industries. The Service provides a full range of planning, design, finance, construction, operations and maintenance services.

Maryland Geological Survey

The Geological Survey conducts topographic, geologic, hydrologic, and geophysical studies, and prepares maps to meet specific needs. The Survey prepares reports on the extent and character of the geology, mineral, and water resources of the State, and supervises provisions relating to archeology. It engages in, sponsors, and coordinates archeological research, and encourages preservation of archeological resources in Maryland. Examples of its studies include water supply, water pollution, assuring continuing supply of mineral resources, the use of the Chesapeake Bay and Bay bottom, shore erosion and shore protection, and the preservation of archeological sites threatened by development.

Maryland Environmental Trust

The Trust's main activity is to encourage landowners of rare or unique natural areas, productive farmland, large open spaces, waterfront, or scenic areas to donate conservation easements on their land to preclude development of their property. The Trust also works with local organizations to establish programs to conserve energy and materials, improve local environments, and increase citizen awareness of the need for voluntary stewardship of Maryland's natural resources. The Trust's policies and programs are defined and supervised by a volunteer board of trustees.

Tidewater Administration

The Boating and Fishing Liaison offices are responsible for coordinating activities between the Department and other State agencies, the Coast Guard, National Weather Service, Corps of Engineers, University of Maryland Sea Grant Program, watermen, wholesalers, and many other government agencies and individuals. They also publish the Guide to Cruising Maryland Waters.

The Waterway Improvement Program mission is to develop, maintain, improve, and promote the recreational and commercial capabilities of Maryland's waterways. Responsibilities of the Program include the dredging and marking of channels and harbors, clearance of obstructions, and construction facilities to benefit the boating public. Some of the activities undertaken are ice-breaking during winter shellfish operations, hydrographic surveying and maintaining regulatory buoys.

Maryland's Coastal Zone Management Program was established to assure that federal, state and local governments work together under agreed upon policies in making decisions affecting use of coastal waters and the surrounding land. The Program's goal is to provide the method, organizational framework and legal strength to balance the many pressures on the coastal zone, so that development, economic progress and preservation of valuable natural resources can be accomplished in a reasonable manner, without the over-exertion of one influence at the expense of the other. Essential to the management activities of the Program is the Coastal Resources Advisory Committee. The Committee functions as the permanent forum of citizens, special interest groups, academic institutions and local, state, and federal agencies for providing guidance and recommendations to the Program.

The Tidal Fisheries Program administers fisheries laws and regulations and manages the use of fisheries resources. These varied activities are combined in management programs to enhance current fish stocks and ensure their future abundance.

The Shellfish Program is responsible for projects involving oyster propagation, blue crab management, clam management, and surveys of the Bay bottom. The major effort of the Tidewater Finfish Program is directed toward fishery resource monitoring. These activities document spawning success and recruitment of young fish into the various commercial and recreational fisheries. The studies are important in determining quantitative projections of Maryland's fishery harvests. They also add insight into the causes and effects of species abundance fluctuations.

Energy Administration

The Energy Administration's mission is to evaluate the production and conservation of energy while minimizing adverse environmental effects. This is accomplished by acquiring future power plant sites, determining the environmental impact of existing plants, increasing public and private awareness of the need for energy conservation, and maintaining balanced fuel allocation within the State in accordance with the needs of the consumer.

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Responsibilities of this department include air and noise regulations and overseeing county plans for water supply and sewage treatment systems. All counties must develop water and sewage plans which are consistent with county land use plans and State water quality standards.

Responsibilities transferred from the Department of Natural Resources in 1980 include: preparation of five-year plans for regional water supply management, licensing Master Well Drillers, issuing Water Appropriation and Use Permits for new structures that may require withdrawal of surface or underground waters, regulating discharges of water or waste or toxic materials into surface or groundwater, and issuing certificates for hauling hazardous substances.

DEPARTMENT OF STATE PLANNING

The Department of State Planning functions as an "advisory, consultative and coordinative" agency in planning matters. It prepares and updates a State development plan and a Comprehensive Outdoor Recreation Plan. In addition, it prepares the State's capital program and annual capital budget. This Department has many Clearinghouse functions, including review of all Federal and State grants, and review of any transfers of land within the State. It is also a storehouse for geographical information on population growth, land use, public facilities and natural resources.

The State Land Use Act of 1974 gives this Department authority to participate in decisions concerning land use in Maryland, but does not convey any regulatory responsibilities or veto power to the Department. Critical Areas and an Intervention Program are two duties mandated by this act.

The Critical Areas Program is responsible for identifying and designating areas of critical concern to the State. Critical Areas are areas of importance, either for future use or development, to the citizens of the State. Critical Areas are divided into three general categories: areas suitable for preservation, conservation, and utilization.

Intervention Program: The Department of State Planning has the power to intervene in any Maryland administrative, judicial, or other proceedings concerning land use, development, or construction which involve activity of more than just local impact.

(continued next page)

Index to Selected State Authorities

DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT

The Maryland Historical Trust preserves and maintains historical, aesthetic, and cultural properties, buildings, and fixtures pertaining to Maryland's early history. The Trust has funding and can establish historical zoning districts for this purpose.

THE DEPARTMENT OF TRANSPORTATION

Within this Department, the State Highway Administration (SHA) is responsible for constructing the State's primary road system and extensive long-range highway planning. All SHA constructions still require grading and sediment control approval from the Water Resources Administration along with other permits for streambed alteration, bridge work or wetlands alterations.

THE DEPARTMENT OF AGRICULTURE

The Department of Agriculture is responsible for the supervision, direction, and control of the provisions of the agricultural laws, and all matters relating to fostering, protecting, and developing the agricultural interest of the State.

The Secretary of Agriculture has the authority to implement pesticide regulations, remove from sale any dangerous pesticide, license pesticide applicators, and establish standards for use, storage, and transfer of pesticides. The Department of Agriculture also participates in implementation of the Hazardous Substances Act and is represented on the Hazardous Substances Disposal Advisory Council.

The Agricultural Land Preservation Foundation was established to preserve agricultural land and woodland in order to provide sources of agricultural products within the State, control urban expansion, and protect agricultural land and woodland as open-space land. The Foundation presently can acquire agricultural land and easements donations.

The Soil Conservation Committee is responsible for the dissemination of funds and recommendations of policy to local Soil Conservation Districts.

INDEX TO SELECTED INTERSTATE AND REGIONAL AGENCIES AND PROGRAMS

Potomac River Basin Advisory Committee

The Potomac River Basin Advisory Committee was established to coordinate the interest of the several basin jurisdictions on all significant matters pertaining to the water and related land resources of the Potomac Basin, to bring to the attention of responsible Federal agencies the general concern and interest of the states and the District of Columbia in these matters, and to advise heads of government on the best possible kind of permanent interstate organization for the planning and development of the resources of the Basin.

Metropolitan Washington Council of Governments

The Council of Governments is a regional planning agency whose members include the county and municipal governments of the Washington, D.C. metropolitan area. COG has been designated by the U.S. Environmental Protection Agency as the agency responsible for overall water quality planning in the region.

INDEX TO LOCAL AUTHORITIES

Maryland-National Capital Park and Planning Commission

The Maryland-National Capital Park and Planning Commission is a bi-county agency, created by the Maryland General Assembly in 1927. The Commission's geographic authority extends to the great majority of Montgomery and Prince George's Counties. Its planning district comprises 1,001 square miles, while its parks district comprises 919 square miles, in the two Counties.

The Commission's three major functions are: 1) the preparation, adoption, and from time to time amendment or extension of the General Plan for the physical development of the Maryland-Washington Regional District; 2) the acquisition, development, operation, and maintenance of a public park system; 3) in Prince

George's County only, the operation of the entire County public recreation program.

The Commission operates in each County through a Planning Board, appointed by and responsible to the county government. All local plans, recommendations on zoning amendments, administration of subdivision regulations, and general administration of parks are responsibilities of the Planning Boards.

Washington Suburban Sanitary Commission

Major functions of the Commission include: 1) the planning, design, construction and maintenance of the Anacostia basin's sanitary sewer systems; 2) the control and position of storm and surface waters in Prince George's County; 3) the engineering and construction of flood control projects; 4) the operation and management of the Utility Sediment Control Program for both Counties.



Northwest Branch

INDEX TO MONTGOMERY COUNTY AGENCIES

Department of Environmental Protection

Salient programs of the Department of Environmental Protection include: 1) developing and implementing the County stormwater capital improvements program; 2) inspecting erosion control measures at construction sites; 3) collecting and interpreting surface and ground water quality data, and 4) developing the Comprehensive Water Supply and Sewerage Systems Plan.

Department of Transportation

The Montgomery County Department of Transportation has the authority to issue permits for grading, filling or excavation in streets, roads or rights-of-way dedicated to public use, provided that sediment and erosion control measures have been and are being employed in accordance with a plan approved by the Montgomery Soil Conservation District. The Department is also responsible for the design and construction of all storm drainage projects in the County.

Montgomery Soil Conservation District

The District is an independent political subdivision of the State responsible for the preservation of natural resources in the county. The District occupies the same boundaries as Montgomery County. It is managed by a five-member Board of Supervisors, four of whom are appointed by the State Soil Conservation Committee and one by the County government. Some technical assistance is provided to the District by the USDA Soil Conservation Service.

On a voluntary basis, the District assists landowners in applying conservation practices to the land. Prior to clearing and grading land in Montgomery County, a developer must have a sediment and erosion plan approved by the Soil Conservation District. All land clearing, soil movement and construction shall be carried out according to Soil Conservation District recommendations regarding control of erosion, siltation and pollution. Duties of the District include designing long-range conservation programs for the County and participation in non-point source pollution studies pursuant to Section 208 of the federal Water Pollution Control Act of 1972.

INDEX TO PRINCE GEORGE'S COUNTY AGENCIES

Department of Public Works and Transportation

This Department has authority to issue permits for grading, filling and excavation and construction of roads, streets and appurtenant structures including bridges, culverts and storm drains, in the public rights-of-way. It also undertakes the design and construction of such facilities for both maintenance and capital improvement projects. All publicly maintained storm-drains are subject to approval of the Washington Suburban Sanitary Commission, which takes them over for maintenance after completion.

Under the County Building Code and Subdivision Regulations, this Department has the authority to review and approve all floodplain studies to determine floodplain limits, flood impacts, and minimum floor elevations for developments, and recommends approval or denial of building or grading permits in the floodplain areas to the Department of Licenses and Permits. Floodplain studies are required to be based on full master plan watershed development for the 100-year storm.

This Department also approves and issues permits for privately operated sanitary landfills and rubble disposal sites, and operates the County's sanitary landfill.

Department of Health: Bureau of Environmental Health

The Bureau monitors various streams of the Anacostia watershed for sources of pollution in regard to water quality.

Department of Licenses and Permits

This Department has authority to issue building, grading, and filling permits, other than sanitary landfills and rubble disposal sites. In general, all development activities on private property are under this Department's jurisdiction, except surface mining which is State regulated, but including sand, gravel, and asphalt processing and stockpiling operations. On-site stormdrains and stormwater management facilities, other than those to be incorporated into the publicly maintained system by WSSC, are under this Department's jurisdiction.

Prince George's Soil Conservation District

The District is an independent political subdivision of the State responsible for the preservation of natural resources in the county. The District occupies the same boundaries as Prince George's County. It is managed by a five-member Board of Supervisors, four of whom are appointed by the State Soil Conservation Committee and one by the county government. Some technical assistance is provided to the District by the USDA Soil Conservation Service.

On a voluntary basis, the District assists landowners in applying conservation practices to the land. Prior to clearing and grading land in Prince George's County, a developer must have a sediment and erosion plan approved by the Soil Conservation District. All land clearing, soil movement and construction shall be carried out according to Soil Conservation District recommendations regarding control of erosion, siltation and pollution. Duties of the District include designing long-range conservation programs for the County and participation in non-point source pollution studies pursuant to Section 208 of the federal Water Pollution Control Act of 1972.



Confluence of Paint Branch and Indian Creek to form Northeast Branch

Scenic and Wild Rivers Act

As Amended In the 1978 Session Of the General Assembly

Article—Natural Resources Section 8-401 Through 8-410 Annotated Code of Maryland (1974 Volume and 1977 Supplement)

AMENDMENTS:

Chapter 70, Acts of 1976, Effective 7/1/76, (8-403(D), (E), (F); 8-408 (A)
Chapter 121, Acts of 1976, Effective 4/13/76, (8-409(B)
Chapter 962, Acts of 1977, Effective 7/1/78, (8-403(G)
Chapter 869, Acts of 1977, Effective 7/1/78, (8-403(D)

NOTE: This Act is published in this form and distributed as a public convenience and is not to be considered the official text. The official text may be found in the Annotated Code of Maryland as referred to above.

ARTICLE—NATURAL RESOURCES

SUBTITLE 4. SCENIC and WILD RIVERS REVIEW BOARD and RELATED PROGRAM

8-401. Declaration of Policy

Many of the rivers of Maryland or portions of them and related adjacent land areas possess outstanding scenic, fish, wildlife, and other recreation values of present and potential benefit to the citizens of the State. The policy of the State is to protect the water quality of these rivers and fulfill vital conservation purposes by wise use of resources within this scenic and wild river system. Development of a scenic and wild rivers system is essential to fulfill these purposes.

8-402. Establishment and Administration of Scenic Rivers Program: Study of Deer Creek.

(a) Establishment of Program; Rivers Included.

There is a Scenic and Wild Rivers Program. The following rivers, including their tributaries, are the initial components of the State scenic and wild rivers system: the Anacostia, Deer Creek, Monocacy, the Patuxent, Pocomoke, Potomac River in Montgomery and Frederick counties, Severn, Wicomico in Charles County, and Youghiogheny.

(b) Administration of Program.

The Secretary shall administer the provisions of this subtitle. He shall formulate and implement a program to carry out the purposes of the Scenic and Wild Rivers Program for each designated river including any other river designated subsequently as part of the system. The Program shall provide for wise management of resources on the land and preservation of their scenic, agricultural, and wild qualities. Development is limited to activities such as fishing, hunting, hiking, horseback riding, natural and geological interpretation, scenic appreciation, and other programs by which the general public can appreciate and enjoy the value of these areas as scenic and wild rivers in a setting of natural solitude.

(c) Study of Deer Creek.

The Department, by July 1, 1976, shall prepare a study and plan for the use and development of the water and related land resources of Deer Creek in Harford County. The study and plan shall evaluate Deer Creek as a water, agricultural, and scenic resource, and evaluate its shoreline and related land in terms of zoning, parks, and recreational areas, public and private use. The study and plan shall be made in consultation and cooperation with every affected unit of Harford County. Upon completion, the Department shall file the study and plan with appropriate recommendations with the Harford County Planning Commission, the Harford County executive, and the Harford County Council for inclusion and implementation in the County's land use planning and zoning as the County deems appropriate.

(d) Inventory and Study—Rivers Included in Subsection (a).

By July 1, 1976, the Department shall prepare and complete an inventory and study of the river stretches and related shorelines of those rivers included in subsection (a) of the scenic and wild river system, except Deer Creek in Harford County. The inventory and study shall evaluate the river and its shorelines as a water, agricultural, and scenic or wild resource. The inventory and plan shall be made in consultation with every affected governmental unit of any county where the affected river is located. Upon completion of any part of the inventory and study, the Department shall submit it with any appropriate recommendations to the governing body of every county where the affected river is located, for their approval and recommendations, and to the next regular session of the General Assembly.

(e) Inventory and Study—Other Rivers.

By July 1, 1978, the Department shall inventory and study every other river and related shoreline in the State and identify the rivers and their related shorelines or portions of them eligible for inclusion into the system as either a scenic or wild river. Upon completion of any part of the inventory and study, the Department shall submit it with any recommendations for additions to the scenic and wild rivers system to the governing body of every county where an affected river is located, for their approval and recommendations, and to the next regular session of the General Assembly. For the purposes of this inventory and study, 1) a scenic river means a free-flowing river whose related shorelines are predominately forested, agricultural, grassland, marshland, or swampland with a minimum of development for at least two miles of the river length, and 2) a wild river means a free-flowing river whose related shorelines are undeveloped, inaccessible except by trail, or predominately primitive in a natural state for at least four miles of the river length.

8-403. Scenic and Wild Rivers Review Board

(a) Established: Composition; Compensation of Members; Chairman.

There is a Scenic and Wild Rivers Review Board. The Board consists of the secretaries of Natural Resources, State Planning and Agriculture. The members of the Board shall select the chairman. A member of the Board may not receive any compensation for his services but shall be reimbursed for necessary travel expenses and disbursements made in order to attend any meeting or perform any other official duty.

(b) Duties.

The Board shall review the inventories, studies and recommendations of the Department.

(c) Advisory Board—Appointment; Composition Generally.

The Board shall appoint, with the advice and consent of the appropriate local governing body a local scenic and wild river advisory board for each river included within the scenic and wild river system. Each local board shall consist of at least seven members who shall be selected as follows:

(1) At least two shall be residents owning land contiguous to the scenic or wild river except for the Youghiogheny River where at least two must be residents owning land contiguous to that portion of the river designated by § 8-408 (a) as a wild river;

(2) At least two shall be residents of the county where the scenic or wild river flows and who do not own land contiguous to the scenic or wild river;

(3) One shall be a representative of the local governing body in each county where the scenic or wild river flows;

(4) Two members from the appropriate soil conservation district;

(5) The members of each local advisory board shall select a chairman.

(d) Advisory Board—Composition When River Flows Through More Than One County.

(1) If a scenic or wild river flows through more than one county, the local advisory board shall consist of no more than the following members:

(i) Two residents of each county through which the scenic or wild river flows who owns land contiguous to the scenic or wild river;

(ii) Two residents of each county through which the scenic or wild river flows who does not own land contiguous to the scenic or wild river;

(iii) Two representatives of the local governing body of each county through which the scenic or wild river flows; and

(iv) A representative of each soil conservation district through which the scenic or wild river flows.

(2) The members of the local advisory board shall elect a chairman.

(e) Advisory Board—Duties.

The local advisory board shall review each designation of a scenic and wild river within its jurisdiction. In addition, the local advisory board shall review the studies and proposed programs formulated by the Department and any proposed rules relating to the recommendations for each river within its jurisdiction, and shall make recommendations to the Board and the appropriate local governing body.

(f) Meetings; Reports; Recommendations.

The Board shall meet regularly and shall submit an annual report to the local legislative delegation of the General Assembly concerning the status of the Scenic and Wild Rivers Program. The Board shall recommend for inclusion in the scenic and wild rivers system, rivers, streams, portions of rivers, streams, and tributaries based on the inventory and studies of the Department and the recommendations of the appropriate local advisory boards.

(g) Upon Completion of an Approved Management Plan.

The local governing body may establish a scenic river advisory board for each designated scenic or wild river within its jurisdiction. Each board, as constituted by the local authority may recommend such policies, laws, rules, and regulations in furtherance of the aims of this subtitle to the appropriate local governing body. If a scenic or wild river flows through more than one county, the scenic river advisory board may consist of an equal number of members from each county.

8-404. Recommendation of Rivers, Streams, and Lands for Inclusion in Scenic and Wild Rivers System.

The Board may recommend for inclusion in the scenic and wild rivers system, rivers, streams, portions of rivers, streams, tributaries, and the related adjacent lands which fall within the following descriptions:

(1) Trout streams and wetland areas the Department designates;

(2) Spawning and propagation areas the Department outlines;

(3) Streams and rivers with scenic and aesthetic value of statewide significance the Department outlines;

(4) Existing or proposed public land adjacent to the rivers and streams in the State;

(5) Sections of any river or stream where no development exists on either side of the river or stream for a distance of one-quarter mile from the mean high water line of the river or stream;

(6) Sections of any river or stream where limited development exists but is compatible with the wise use of the resources;

(7) Sections where encroachment is imminent and would lead to degradation of the river or stream, to some form of pollution, or adversely affect the intent of this subtitle; or

(8) Sections of any river or stream important as food production areas, areas supporting migratory waterfowl, and spawning areas for shellfish.

8-405. Evaluation of Waterway Prior to Approval of Use or Development Plan.

Before specific plans for use and development of water and related land resources are approved, including constructing improvements, diversions, roadways, crossings, channelizations, locks, canals, or other uses which change the character of a river or waterway or destroy its scenic value, full consideration and evaluation of the river as a scenic and wild resource shall be given.

(continued next page)

Scenic and Wild Rivers Act

8-406. Approval Required for Construction, Operation, or Maintenance of Dams.

A dam or other structure impeding the natural flow of a scenic and wild river may not be constructed, operated, or maintained in a scenic and wild river, and channelization may not be undertaken, unless the Secretary specifically approves.

8-407. Cooperation by State Units.

Every State unit shall recognize the intent of the Scenic and Wild Rivers Program and take whatever action is necessary to protect and enhance the scenic and wild qualities of the designated river. The Department shall utilize the scenic and wild rivers system and all related information to assist and cooperate with any other State and local unit which exercises jurisdiction and authority over land use planning and management.

8-408. Youghiogheny River—Designation as Wild River; Mining of Minerals.

(a) Designation as a Wild River.

That segment of the Youghiogheny River between Millers Run and the southern corporate limits of Friendsville shall be designated a wild river.

(b) Mining of Minerals.

Mining of any minerals by the strip or open pit method is prohibited in the scenic corridor of the segment provided in subsection (a). The provisions of this

subsection do not apply to areas within the scenic corridor which previously have been mined and are not reclaimed. The scenic corridor shall be defined by rules and regulations adopted by the Department, but shall be confined to those adjacent land areas which are visible from the river or its contiguous shore.

8-409. Youghiogheny River—Rules and Regulations Governing Use and Development.

(a) Development.

For the purpose of this section "development" means any structure, appurtenance, other addition, modifications, or alteration constructed, placed or made on or to land or water.

(b) Rules and Regulations

In addition to the other regulatory authorities provided by this subtitle and due to the unique character of the Youghiogheny River the Department shall adopt rules and regulations after review by the local advisory board and the Scenic and Wild Rivers Review Board, by January 31, 1977, to regulate use and development in that segment of the Youghiogheny River designated in § 8-408 (a) and adjacent land areas within the scenic corridor where development would affect the primitive qualities and characteristics of the Youghiogheny River.

8-410. Youghiogheny River—Use of Funds to Purchase Property; Restrictions on Use of Water or Land Areas.

(a) Use of Funds to Purchase Property

If the prohibitions of § 8-408 or of any rule or regulation the Department adopts for the Scenic and Wild Rivers Program would constitute a taking of a property right without just compensation in violation of the Constitution of the United States or the Constitution of Maryland, funds under Program Open Space may be used to purchase or otherwise pay for any property taken providing the acquisition has been previously approved by the General Assembly.

(b) Restrictions on Use of Water or Land Areas

As to any water or land areas within that portion of the Youghiogheny River designated by § 8-408 (a) as a wild river, funds under the open space program may be used to purchase any restriction, whether drafted in the form of an easement, covenant, or condition, prohibiting or limiting the use of any of the water or land areas of any improvement or appurtenance thereto for any of the purposes listed in § 2-118 (b) of the Real Property Article. The restriction creates an incorporeal property interest in the water or land areas or the improvement or appurtenance thereto, so restricted, which is enforceable in both law and equity in the same manner as an easement or servitude with respect to the water or land areas or the improvement or appurtenance thereto, if the restriction is executed in compliance with the requirements of the Real Property Article for the execution of deeds of the Estates and Trusts Article for the execution of wills.

General References

Baltimore Regional Planning Council. *Erosion and Sediment Survey*, prepared for RPC by Soil Conservation Service, U.S.D.A. 1977.

Carter, R.W. *Magnitude and Frequency of Floods in Suburban Areas*, U.S.G.S. Prof. Paper 424B.

CH2M Hill. *Draft: Anacostia River Water Quality*. 1980.

Costa, John E. *Effects of Agriculture on Erosion and Sedimentation in the Piedmont Province, Maryland*. G.S.A. Bulletin, Vol. 86.

Ellis, Skip. *Anacostia Technical Watershed Study*, prepared by CH2M Hill for Maryland National Capital Park & Planning Commission (M-NCPPC) 1981.

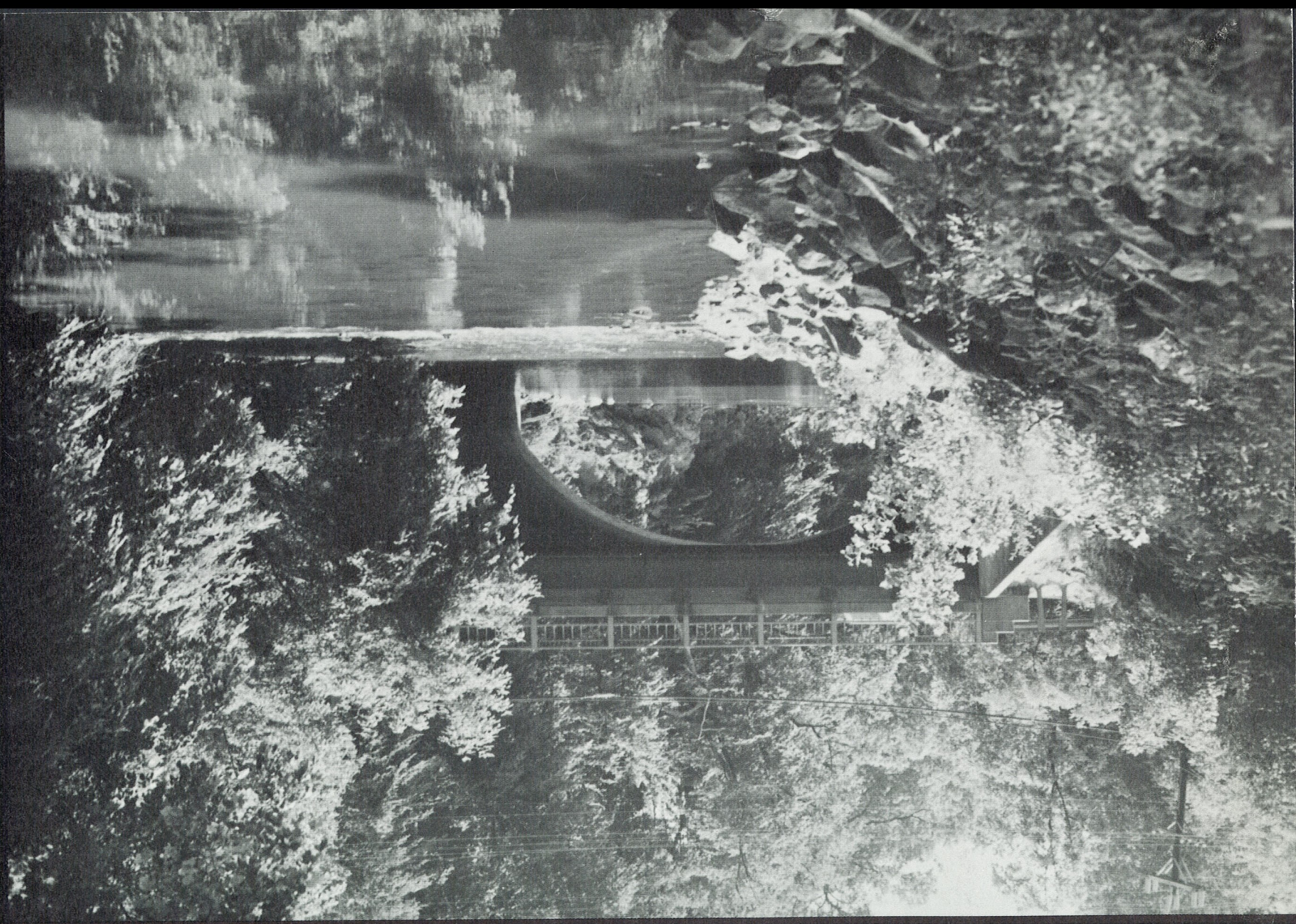
Keller, F.J. *Effects of Urban Growth on Sediment Discharge Northwest Branch, Anacostia River Basin, Maryland*. U.S.G.S. Prof. Paper 450. 1962.

Maryland-National Capital Park and Planning Commission. *Adopted and Approved Master Plan, Eastern Montgomery County Planning Area: Cloverly, Fairland, White Oak*. 1982. See pps. 254-261 for Performance Criteria for Proposed Development in the Paint Branch watershed.

U.S. Department of Agriculture, Soil Conservation Service. *Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas*. 1975.

University of Maryland, Department of Civil Engineering. *Resource Identification Study for the Anacostia River Basin*. 1973.

Yorke, Thomas H. *Effects of Sediment Control on Sediment Transport in the Northwest Branch, Anacostia River Basin, Montgomery County, Maryland*. 1975.



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